



Amino Set-Top Box Configuration Guide

March 2010



Copyright

Set-Top Box Configuration Guide

March 2010

Issue 108

© 2010 Amino Communications Ltd.

The generally available software versions at the time of issue are as follows:

Platform	Software release version	CPU
103	0.15.1	IBM Vulcan
110	0.15.10	
110-H	0.15.10	
500	0.15.10	
130/130M	0.16.7	ST 71xx
130-H	0.16.7	
530	0.10.21	
125	0.16.7	TI - DM6443 or DM6441 (DaVinci)

Amino, AmiNET, AssetHouse, Mood and the Amino logo are trademarks of Amino Communications Ltd.

All other trademarks are the property of their respective owners.

This document describes components that undergo continual development. The information in this document is subject to change without notice at any time.

There may be visual deviations between graphics in the manuals and the released software.

Comments about the documentation are welcome. Please submit feedback to the Amino support site at <http://stbsupport.aminocom.com> using the Request Support > Submit Feedback option.

For further information about Amino or Amino products, please e-mail info@aminocom.com

Contents

Introduction	1
About Amino	1
About this document	1
Document conventions	1
Structure	2
Document history	3
Chapter 1—Configuring set-top boxes	5
1.1 Configuration files	5
1.2 Configuration techniques	6
Chapter 2—Set-top box configuration files	9
2.1 General set-top box settings file	9
2.2 Network configuration file	10
2.3 netconf file contents	10
2.4 NOR Flash configuration	11
2.5 Channels file	11
2.6 Trusted domains file	13
2.7 User settings file	14
2.8 HOSTNAME file	15
2.9 Function keys file	15
2.10 Browser configuration files	16
2.11 Dynamic DHCP settings file	17
2.12 File access policy	17
Chapter 3—Using STBremoteconf	19
3.1 STBremoteconf	19
3.2 Installation	20
3.3 Removing STBremoteconf	22
3.4 Sending commands with STBremoteconf	22
3.5 Using scripts to control STBremoteconf	23
3.6 STBremoteconf parameter syntax	23
3.7 List of commands	27
Chapter 4—Using libconfig	41
4.1 Before you start	41
4.2 libconfig configuration areas	41
4.3 Using libconfig to get and set values	43
Chapter 5—Customising a software upgrade image	45
5.1 Configuring image components	45
5.2 Editing the flashcontents file	46

5.3	Creating an upgrade script	47
5.4	Enabling remote log-in tools	47
5.5	Customising graphics	48
Chapter 6	Set-top box configuration pages for Fresco and Opera 8.5	53
6.1	About the set-top box configuration pages.	53
6.2	Getting started	55
6.3	Preferences pages	56
6.4	Using the Preferences pages	57
6.5	Preferences pages - configuration areas	59
6.6	Management pages	65
6.7	Management pages – configuration areas	68
6.8	Configuration page settings for Fresco and Opera 8.5	85
Chapter 7	Set-top box configuration pages for Opera 9	93
7.1	About the set-top box configuration pages.	93
7.2	Getting started	95
7.3	Preferences pages	96
7.4	Using the Preferences pages	96
7.5	Preferences pages - configuration areas	98
7.6	Management pages	108
7.7	Configuration page settings for Opera 9	122
Appendix A	NOR Flash settings	127
A.1	A130 Video Outputs	140
Appendix B	Settings file contents	141
B.1	Remote layout options	166
B.2	LED Configuration operation vs STB product	167
B.3	Volume control	167
Appendix C	Netconf file contents	169
Appendix D	dhcpc file contents	173
Appendix E	Video output formats	177
E.1	AmiNET 103	177
E.2	AmiNET 110, 110H	178
E.3	AmiNET 125	178
E.4	AmiNET 130, 130H	179
E.5	AmiNET 500	179
E.6	AmiNET 530	179
Appendix F	Board revision numbers	181
	AmiNET110	181
	AmiNET 500	181
	AmiNET 530	182
	AmiNET130	182
	AmiNET130H	182
	AmiNET130M	182
	AmiNET 125	182
	AmiNET 132	182
	AmiNET 532	183
	MOOD400-030	183
	MOOD400-032	183
Appendix G	Using the configuration techniques	185
G.1	Configuring image components	185

G.2	Configuring a large deployment	186
Appendix H	Invalid video mode recovery	189
H.1	How it works	189
Appendix I	Pairing an IR remote control with a set-top box	191
I.1	On the grey Amino IR remote control	191
Index		193

Introduction

About Amino

Amino Communications (<http://www.aminocom.com>) is the specialist in digital entertainment products. Amino's range of software and set-top box systems can be tailored for telecom, broadcast and hospitality firms to offer highly scalable and targeted services.

The award-winning AmiNET™ and Mood range is used by leading service operators in over 80 countries. Amino's 'AssetHouse' technology opens the door for content producers, telecoms companies, broadcasters and web TV firms to maximise opportunities through better services, targeted content and greater choice and taking IPTV to the next level by allowing clients such as BT Vision to think like retailers and package, personalize and refresh extra revenue-generating services to viewers.

Amino Communications and AssetHouse are wholly owned subsidiaries of Amino Technologies PLC. Listed on the London Stock Exchange AIM, symbol AMO. Amino's HQ is based near Cambridge, UK, with offices in the US, China and Sweden.

About this document

Amino set-top box management offers various means of editing/reading the configuration and controlling basic set-top box operation (for example, in order to initiate a software upgrade or reboot). This document describes the configurable settings and configuration options for the AmiNET series of set-top boxes. It assumes you have a set-top box and access to a suitable software release. It also assumes a basic understanding of the technologies involved, which include Linux command line operation.

For information on installing the Amino software and multicast upgrade of the set-top box, see the *Amino Installation and Upgrade Guide*.

Many of the control and customisation options described in this document can also be implemented using JavaScript Media Access Control Extensions (JMACX). JMACX is not covered in this document – see the *Amino JMACX API specification* for more information.

Document conventions

The following document conventions are in use:

Formatting	Usage
< ... >	Indicates a value that you need to replace with a system specific value (except where used in HTML or XML examples, where it is used in tags, as normal).
[...]	Indicates optional parameters - for example in commands or functions.
... ...	Indicates choices – for example where an input can take one of a number of values.

Formatting	Usage
code font	Indicates input and output values (for example, at a command line), as well as function, configuration, parameter and file names.
bold text	Used for emphasis and to indicate specific key presses. For example: Press the Esc key.
grey text	Commands or settings which are not in general use (for example, configuration settings that are reserved for Amino internal use).
blue text	Cross-reference (this is a “clickable” hyperlink if you are viewing the document electronically).

Structure

This document consists of the following chapters:

Chapter	Outline
Introduction	General introduction.
Chapter 1, "Configuring set-top boxes"	This chapter introduces the options available for configuring set-top boxes, and details how to configure certain configuration areas.
Chapter 2, "Set-top box configuration files"	This chapter lists some of the main set-top box configuration settings.
Chapter 3, "Using STBremoteconf"	This chapter introduces <code>STBremoteconf</code> and explains how to use it to configure and control a set-top box
Chapter 4, "Using libconfig"	This chapter introduces <code>libconfig</code> and explains how to construct commands to view and/or edit set-top box configuration.
Chapter 5, "Customising a software upgrade image"	This chapter describes how to customise the software upgrade before it is signed and loaded to the set-top box.
Chapter 6, "Set-top box configuration pages for Fresco and Opera 8.5"	This chapter introduces the Management and Preferences pages for Opera8.5 and Fresco builds and describes how to use them to configure and control a set-top box.
Chapter 7, "Set-top box configuration pages for Opera 9"	This chapter introduces the Management and Preferences pages for Opera9 builds and describes how to use them to configure and control a set-top box.

Chapter	Outline
Appendices	Appendix A provides configuration examples and other supporting information for NOR Flash. Appendix B provides configuration examples and other supporting information for Settings file instructions. Appendix C provides configuration examples and other supporting information for <code>netconf</code> instructions. Appendix D provides configuration examples and other supporting information for <code>dhcpc</code> instructions. Appendix E lists the video output formats per set-top box. Appendix F lists board revision numbers per set-top box. Appendix G gives methods of using the configuration techniques. Appendix H describes a method of recovering from setting an invalid video mode. Appendix I describes the method of pairing an IR remote control with a set-top box.

Document history

Issue	Date issued	Changes
108	March 2010	General updates and corrections.
107	November 2009	New appendix listing <code>DHCP</code> options added. <code>Netconf</code> appendix updated. Galio support information removed. Please see earlier version of this document for information relating to the Galio browser.
106	November 2009	Chapter 7 added describing the new management and preference pages Configuration page settings are now included in Chapters 6 and 7. Appendix A, B and C have been updated. Document updated for Opera 9 builds. Appendix G and H are both new. Support information for the AmiNET 120 and 124 removed. Please see earlier version of this document for information relating to those platforms.
105	June 2009	Removed confidentiality requirement. Password protection warnings added.
104	June 2009	Appendix G updated. Minor corrections.
103	May 2009	General Updates. Board Revision Numbers updated. <code>STBremoteconf</code> REFORMAT added.
102	January 2009	File Access Policy information added. <code>OUTRES</code> info updated. Summary tables updated. Scripts to control <code>STBremoteconf</code> added. <code>SAVE</code> command info corrected.

Chapter 1— Configuring set-top boxes

This chapter provides a brief outline of the configurable settings and configuration options for the AmiNET series of set-top boxes. More detailed descriptions of the settings and options will be provided in later chapters. Note that not all settings described in this document are available to all set-top boxes. Whether a set-top box uses a setting depends on the software build used to create the software image installed on the set-top box.

1.1 Configuration files

Configuration that persists through set-top box reboots is generally stored in configuration files that can be read or edited either directly or via the administration tools. The exception is the NOR Flash, which can only be configured via the administration tools. Further information on the available configuration files can be found in [Chapter 2, "Set-top box configuration files"](#).

1.1.1 Settings

The `settings` file contains various set-top box settings, such as languages, volume ranges and keyboard configuration.

1.1.2 Netconf

The `netconf` file contains network configuration settings. In some cases, the set-top box reads these settings from the NOR Flash instead of from this file.

1.1.3 Hostname

The `HOSTNAME` file contains just a single setting, specifying the name of the set-top box.

1.1.4 DHCP

The dynamic network and multicast upgrade settings retrieved from the DHCP server are stored in a file called `dhcpcd-eth0.info`. These values are only set if the set-top box uses dynamic network and multicast upgrade settings, otherwise, the static values are defined in the NOR Flash, `netconf` or `dhcpc` files. The DHCP values are read-only.

1.1.5 Trusted domains

The `trsdms.txt` file defines trusted domains and specifies whether JavaScript and Macrovision are enabled for each.

1.1.6 Channels

The `chnls.txt` file contains a list of channel numbers and the media stream URL for the channel.

1.1.7 Function keys

The `fkeys.conf` file sets the default actions associated with the buttons on the IR remote control. This file should not normally be edited directly (use JMACX functions instead).

1.1.8 Browser configuration

Software releases will normally include the configuration file for the browser. For Fresco this is called `config.txt`. For Opera it is `opera.ini`. In some builds, the set-top box reads some of its settings from these files.

1.1.9 Password

Software releases store the actual passwords in encrypted form in `/mnt/nv/passwd` and `/mnt/nv/shadow`, at boot-up these are copied to `/etc/passwd` and `/etc/shadow`.

Warning:

Amino strongly recommends that you change the default passwords when deploying our set-top boxes. See Section 4.4 of the Amino *Installation and Upgrade Guide* for information on changing these default passwords.

1.1.10 NOR Flash

The NOR Flash contains, among other things, settings required by the ROM. In some cases, this can include static network settings (these would otherwise be set in the `netconf` file).

1.1.11 Usersettings

The `usersettings` file contains settings that the set-top box user controls through the Preferences pages. These override the values specified for the same settings in the `settings` file. The values persist when a new software image is loaded to the set-top box.

1.2 Configuration techniques

Amino set-top box management offers various means of editing/reading configuration and controlling basic set-top box operation (for example, to initiate a software upgrade or reboot). The techniques which make this possible are described below:

- **STBremoteconf** – A remote configuration tool that enables you to send configuration and control commands across the network to one or more set-top boxes.
- **Configuration pages** – The local configuration pages can be accessed using an Amino IR (Infrared) keyboard and television display to change configuration settings and carry out simple commands such as rebooting and initiating software upgrades. The term “Configuration pages” encompasses both the Management pages and the User Preferences pages.
- **Imagecomponents** – The set of files that a software upgrade image is built from. These include configuration files and graphics files (for example, those used in the display to show that the set-top box is loading new software). In [Table 1.2](#) below, changing `imagecomponents` means editing the contents of the `imagecomponents` directory before creating and signing a new upgrade image. If new files are added they should be added to the `flashcontents` file.

- **libconfig commands (via Telnet/SSH)** – If a set-top box has either the Telnet or SSH component installed this can be used to log in to it remotely and carry out configuration using `libconfig` commands. Note that these components are usually not installed for security reasons, so they will need to be added to the software image installed on the set-top box if you want to use them.
- **JMACX (JavaScript)** – The JavaScript Media Access Control Extensions (JMACX) API offers a full set of functions for controlling a range of set-top box operational areas via JavaScript embedded in web pages. See the *Amino JMACX API Specification* for more information on using the JavaScript extensions.

Table 1.1 summarises which configuration files are used with which techniques.

Configuration files	Technique				
	STBremoteconfig	libconfig commands	JMACX API	Configuration pages	Image components
SETTINGS	Y	Y	Y	Y	Y
NETCONF	Y	Y	Y	Y	Y
HOSTNAME			Y	Y	Y
DHCP					
TRUSTED DOMAINS			Y	Y	Y
CHANNELS			Y	Y	Y
FUNCTION KEYS			Y		Y
BROWSER CONFIGURATION			Y	Y	Y
PASSWORD					Y
NOR FLASH	Y	Y	Y	Y	Y

Table 1.1: Configuration techniques

Note: The use of DHCP is as an ON/OFF configuration, configuration values supplied by the DHCP server are read only.

The configuration techniques described in the tables below are each suited to particular circumstances and contexts. For example, the Configuration pages offer local configuration, while `STBremoteconf` enables remote configuration. Editing image component files before the software is upgraded enables the same configuration to be set on multiple set-top boxes, whereas changes via Telnet can only apply to a single set-top box.

	STBremoteconf	libconfig commands	JMACX API	Configuration pages	Image components
Contexts					
Before software is loaded					Y

Table 1.2: Use of configuration techniques.

	STBremoteconf	libconfig commands	JMACX API	Configuration pages	Image components
After software is loaded	Y	Y	Y	Y	
Remote	Y	Y			Y
Local			Y	Y	
Single STB	Y	Y	Y	Y	Y ^a
Large deployment	Y ^b		Y		Y
Test settings	Y	Y		Y	

Table 1.2: Use of configuration techniques.

- a. Not generally recommended, unless performing operations that cannot be done in another way, for example, adding a client program.
- b. Not recommended – settings are only received if the STB is powered.

Note: In [Table 1.3](#), “reflash” refers to deleting all the contents of the NAND flash and completely replacing the main software image using the bootstrap process. All configuration options, except those stored in NOR Flash, will be replaced with the configuration contained in the new software image, “upgrade” refers to replacing just the main software image. In this case, some of the configuration files, for example, the user settings, may be preserved. This can be controlled when the software image is built.

	STBremoteconf	libconfig commands	JMACX API	Configuration pages	Image components
Operations					
read configuration	Y	Y		Y	Y
write configuration	Y	Y		Y	Y
reboot	Y		Y	Y	
upgrade software	Y		Y	Y	
reflash	Y		Y	Y	

Table 1.3: Use of configuration techniques.

Chapter 2—Set-top box configuration files

This chapter describes the configurable settings and options for AmiNET set-top boxes, including the settings available from the configuration pages.

Note: In the following instructions, `<release_name>` indicates the name of the software release image directory that contains your Amino software release. For example, `A110-0.14.0-frescoj27-ami_wm-subs-1` installs in `0.14.0-frescoj27-ami_wm-subs-1`, hence `<release_name>` in this case is `0.14.0-frescoj27-ami_wm-subs-1`.

2.1 General set-top box settings file

The settings file contains various set-top box settings, such as languages, volume ranges and keyboard configuration.

2.1.1 How to view or change settings

An initial settings file is supplied as part of a software release, in the following location:

```
<release_name>/upgradeimage/imagecomponents/
```

You can edit the `settings` file directly or replace it before creating a software upgrade image. Alternatively, you can use the various administration tools available to change settings once software is loaded to the set-top box. Management pages, `STBremoteconf` and `libconfig` (for example, via Telnet/SSH) can all change values in this file.

Once loaded on the set-top box, the settings file is stored in the following location:

```
/mnt/nv/
```

Note: The settings used depends on the software and hardware build.

2.1.2 Example settings file

```
DOLBY_RF=""
REMOTECONF=""
IGMP_END_TIMEOUT="30"
IGMP_START_TIMEOUT="30"
RTSP_SCALE="6"
BROWSER_ENABLECOOKIES="Y"
BROWSER_HOMEPAGE="about:/start.htm"
BROWSER_HELPPAGE=""
HTTP_PROXY_IGNORE=""
HTTPS_PROXY=""
HTTP_PROXY=""
USE_PROXY="Y"
TOOLBAR_STATE="1"
```

```

RTSP_END_TIMEOUT="6"
RTSP_START_TIMEOUT="4"
RTSP_SERVER="ncube"
DELAY_FACTOR="4"
REPEAT_RATE="8"
MAXIMUM_VOLUME="100"
MINIMUM_VOLUME="0"
DEFAULT_VOLUME="100"

```

2.1.3 Settings file contents

See [Appendix B, "Settings file contents"](#) .

2.2 Network configuration file

The `netconf` file contains network configuration settings. In some cases, the set-top box reads these settings from the NOR Flash instead of from this file.

2.2.1 How to view or change settings

Note: In many cases, the settings available in this file are read from alternative locations, for example, NOR Flash. For more information on which settings are used by Fresco and Opera, see [Appendix C, "Netconf file contents"](#) for the default usage of the main settings by Fresco and Opera builds.

An initial `netconf` file is supplied as part of a software release, in the following location:

```
<release_name>/upgradeimage/imagecomponents/
```

You can edit this file directly or replace it before creating a software upgrade image. Alternatively, you can use the various administration tools available to change settings once software is loaded to the set-top box. Management pages and `libconfig` (via Telnet/SSH) can change values in this file.

Once loaded on the set-top box, the `settings` file is stored in the following location:

```
/mnt/nv/
```

2.2.2 Example netconf file

The following example shows a sample configuration file supplied with a software release. In this example, no static network settings are set because DHCP is set to `Y`, which specifies that the set-top box will retrieve the network settings from the DHCP system:

```

DHCP="Y"
TIME_ZONE=""
TIME_SERVER=""
DNS=""
DOMAIN=""
GATEWAY=""
NETMASK=""
IPADDR=""

```

2.3 netconf file contents

See [Appendix C, "Netconf file contents"](#) .

2.4 NOR Flash configuration

The NOR Flash contains settings required by the ROM. In some cases, this can include static network settings (these would otherwise be set in the `netconf` file).

2.4.1 How to view or change settings

NOR Flash settings are not edited via a separate configuration file, instead, they can be accessed via the administration tools.

If you want to define values before loading the software image to the set-top box, you can do so by adding `libconfig` calls to the `upgrade.sh` file. This is an upgrade script that the set-top box executes when the new software image is loaded. If this file does not already exist, create it in the following location:

```
<release_name>/upgradeimage/imagecomponents/
```

The file will then be included when you create a software upgrade image. The NOR Flash settings example below gives an example of how to add `libconfig` calls to the upgrade script. See [Chapter 4, "Using libconfig"](#) for general information on using `libconfig`.

Alternatively, you can use the administration tools available to change settings once software is loaded to the set-top box.

Note that which of these settings are used depends on the software and hardware build.

For more information on which settings are used by Fresco and Opera, see [Appendix A, "NOR Flash settings"](#).

2.4.2 Example script to set NOR Flash settings

NOR Flash settings cannot be edited via a configuration file, instead they need to be changed directly. The following example shows how to add `libconfig` calls that change NOR Flash settings to the upgrade script (`upgrade.sh`). This is included in the software upgrade image, and executed when the software is loaded on the set-top box.

The settings in this example define static multicast values:

```
#!/bin/sh
libconfig-set NORFLASH.MULTICAST_BOOTSTRAP_GROUP 239.255.1.1
libconfig-set NORFLASH.MULTICAST_BOOTSTRAP_PORT 11111
libconfig-set NORFLASH.MULTICAST_UPGRADE_GROUP 239.255.1.2
libconfig-set NORFLASH.MULTICAST_UPGRADE_PORT 11111
```

2.4.3 NOR Flash - list of settings

For further information see [Appendix A, "NOR Flash settings"](#).

2.5 Channels file

The `chnls.txt` file contains a list of channel numbers and the media stream URL for the channel.

Note: This is not available in Opera 9.

If you need a basic channel change application some example HTML code is available for download from the Amino Support Site at **Online Support > Downloads > JMACX and Application Development > channel_changer.tgz**

The easiest way to use this is to install it on a webserver editing the `init` function (below) to include your stream addresses:

```
function init()
{
    /* Setup channel list */
    add(0, "igmp://239.1.1.1:11111", "description1");
    add(1, "igmp://239.1.1.2:11111", "description2");
    add(2, "igmp://239.1.1.3:11111", "description3");
    add(3, "igmp://239.1.1.4:11111", "description4");
    add(4, "igmp://239.1.1.5:11111", "description5");
    addChannelList(0,5); // the 5 should be replaced with the
number of channels you are adding above
    //addChannelList();
    /* Select initial stream */
    start(0);
}
```

Set the homepage on your box(es) to point to this page when they boot up.

2.5.1 How to view or change settings

The `chnls.txt` file is not normally supplied as part of a software release, instead, it is created when you first configure channels via the Management pages or other administration tool.

If you want to define channels before loading the software image to the set-top box, you can do so by creating the file in the following location:

```
<release_name>/upgradeimage/imagecomponents/
```

The file will then be included when you create a software upgrade image. Alternatively, you can use the various administration tools available to change settings once software is loaded to the set-top box.

Once created or loaded on the set-top box, the `chnls.txt` file is stored in the following location:

```
/mnt/nv/
```

You will also need to add `chnls.txt` to the end of `flashcontents` in the form:

```
R chnls.txt
```

2.5.2 Example chnls.txt file

```
00: http://www.aminocom.com
01: igmp://239.255.250.1:11111
02: igmp://239.255.250.2:11111
03: igmp://239.255.250.3:11111
04: igmp://239.255.250.4:11111
05: igmp://239.255.250.5:11111
100: http://news.bbc.co.uk
101: http://msn.co.uk
200: http://google.co.uk
```

2.5.3 Channels file contents

The file contains just a list of channel numbers and the URL for them, in the following format:

```
<channel_number>:<url>
```

For example:

```
123 igmp://239.255.250.2:11111
```

Channel numbers can be in the range 0 - 999, and they do not have to run consecutively or start at zero (for example, you could just configure channels 100 - 199).

2.6 Trusted domains file

The `trsdmins.txt` file defines trusted domains and specifies whether JMACX and Macrovision are enabled for each.

2.6.1 How to view or change settings

The `trsdmins.txt` file is not normally supplied as part of a software release, instead, it is created when you first configure trusted domains via the **Management** pages or other administration tool. See [Chapter 6, "Set-top box configuration pages for Fresco and Opera 8.5"](#) for further details.

If you want to define trusted domains before loading the software image to the set-top box, you can do so by creating the file in the following location:

```
<release_name>/upgradeimage/imagecomponents/
```

The file will then be included when you create a software upgrade image.

Alternatively, you can use the various administration tools available to change settings once software is loaded to the set-top box.

Once created or loaded on the set-top box, the `trsdmins.txt` file is stored in the following location:

```
/mnt/nv/
```

2.6.2 Example trsdmins.txt file

```
3 macrovision.aminocom.com
2 *.bbc.co.uk
2 *.aminocom.com
0 *
```

2.6.3 Trusted domains file contents

The file contains a list of trusted domains, each one on a separate line, with a code that indicates what is enabled. The format for each line is as follows:

```
<code> <url>
```

where:

<code>	Code that indicates what is enabled for the specified domain. Values can be as follows: 0 – neither Macrovision nor JMACX enabled 1 – Macrovision enabled, JMACX disabled (unlikely to need setting) 2 – JMACX enabled, Macrovision disabled 3 – Both JMACX and Macrovision enabled
<url>	The URL for the trusted domain. This can use asterisks as wildcards. For example: <pre>3 *.aminocom.com</pre>

Important: The rules specified in the `trsdmins.txt` file are applied in the order they are stated, so you need to take care when adding domains to ensure that the rules are applied as intended.

For example, in the following file, 3 specifies that Macrovision and JMACX are enabled for the `macrovision.aminocom.com` domain, and 2 specifies that only JMACX is enabled for any other `aminocom.com` domain:

```
3 macrovision.aminocom.com
```

```
2 *.aminocom.com
```

In the following alternative example - with the same settings re-ordered - only JMACX is enabled for any aminocom.com domain, and so Macrovision is not enabled for macrovision.aminocom.com, even though 3 would normally enable Macrovision - since Macrovision for this domain has already been ruled out in the previous line:

```
2 *.aminocom.com
3 macrovision.aminocom.com
```

2.7 User settings file

The USERSETTINGS file contains settings that the set-top box user controls (through the **Preferences** pages).

Note: These override the values specified for the same settings in the SETTINGS file.

2.7.1 How to view or change settings

The usersettings file is not normally supplied as part of a software release, instead, it is created when the user first configures preferences via the **Preferences** pages.

If you want to define local user settings before loading the software image to the set-top box, you can do so by creating the file in the following location:

```
<release_name>/upgradeimage/imagecomponents/
```

The file will then be included when you create a software upgrade image.

Alternatively, you can use the various administration tools available to change settings once software is loaded to the set-top box. **Preferences** pages and libconfig (via Telnet/SSH) can change values in this file.

Note: Values set via the usersettings file override the value for the same configuration setting elsewhere, for example, in the settings file.

Once created or loaded on the set-top box, the usersettings file is stored in the following location:

```
/mnt/nv/
```

Note: The settings are used depends on the software build. For more information on which settings are used by Fresco and Opera8.5, see [Appendix F, "Configuration page settings for Opera8.5 and Fresco"](#). For more information on which settings are used by Opera9, see [Chapter 7, "Set-top box configuration pages for Opera 9"](#).

2.7.2 Example usersettings file

```
DOLBY_RF=""
DISPLAY_MODE="panscan"
SUBTITLES_SECOND_LANG="ita/it"
SUBTITLES_PREF_LANG="eng/en"
SECONDARY_LANG="fra/fre/fr"
PREFERRED_LANG="eng/en"
```

2.7.3 Usersettings file contents

The USERSETTINGS file can contain any of the settings normally specified in the SETTINGS file. Software builds for some browsers write certain settings to the usersettings file.

2.8 HOSTNAME file

The `HOSTNAME` file contains just a single value, specifying the name of the set-top box.

2.8.1 How to view or change settings

The `HOSTNAME` file is not normally supplied as part of a software release. It is created when you specify a hostname via the **Management** pages.

If you want to define a hostname before loading the software image to the set-top box (not recommended), you can do so by creating the file in the following location:

```
<release_name>/upgradeimage/imagecomponents/
```

The file will then be included when you create a software upgrade image. Alternatively, you can use the various administration tools available to change settings once software is loaded to the set-top box.

Management pages and `libconfig` (via Telnet/SSH) allow change values in this file.

Once created or loaded on the set-top box, the `HOSTNAME` file is stored in the following location:

```
/etc
```

2.8.2 Example HOSTNAME file

The `HOSTNAME` file contains just a single line, such as the following:

```
AMINET
```

2.8.3 HOSTNAME file contents

The following table describes the settings available in the `HOSTNAME` file.

Default values listed here are used if no value is supplied.

The example shows how to enter the setting if you are editing the `hostname` file directly (note that the values are all enclosed in quotation marks). See the appropriate documentation for information on how to enter values using other means (for example, JMACX or `libconfig` via Telnet).

Setting	Default value	Description
HOSTNAME		The set-top box's host name. Default: <code>""</code> Example: <code>HOSTNAME="AMINET"</code>

2.9 Function keys file

The `fkeys.conf` file specifies how the set-top box responds to remote control keys. If you want to change the configuration, you are not recommended to edit this file directly. Instead, you should use the JMACX `SetKeyFunction` and `SaveKeyFunction` commands. See the *Amino JMACX API Specification* for details of how to use these commands.

2.9.1 How to view or change settings

Note: This option does not apply for Opera v9.

An initial `fkeys.conf` file is supplied as part of a software release, in the following location:

```
<release_name>/upgradeimage/imagecomponents/
```

You should not normally edit this file directly. Instead, you are recommended to use JMACX functions to read and edit it:

```
ASTB.SetKeyFunction
ASTB.SaveKeyFunction
```

See the *Amino JMACX API Specification* for more information, and for a list of the functionality that can be mapped to keys.

2.9.2 Example fkeys.conf file

The following section shows a partial example of a `fkeys.conf` file, containing entries for IR keyboard and the Amino IR remote control. (<...> shows where several lines have been removed to reduce the size of this example). For a complete list of all the remote control key codes, see the *Amino JMACX API Specification*.

```
# First, the keyboard mappings
0x40000072 1      # Browser Home
0x40000007 17     # Help
0xC0000001 1      # Browser Home
0x40000066 3      # Browser Back
0x40000067 4      # Browser Forwards
0x40000068 6      # Browser Reload
0x40000069 5      # Browser Stop
0x4000006A 2      # Browser Goto
<...>

# Now the amino remote mappings
0x40000003 0      # Last Ch
0x4000012C 18     # Channel Up= Browser Ch Up
0x4000012E 19     # Channel Down= Browser Ch Down
0x4000012F 41     # Volume up
0x40000130 42     # Volume down
0x40000131 40     # Mute
0x40000132 43     # Power
0x40000144 16     # Menu= Browser Preferences
<...>
```

2.10 Browser configuration files

Software releases will normally include the configuration file for the browser. For Fresco, this is called `config.txt`, for Opera it is `opera.ini`.

Once created or loaded on the set-top box, the Opera configuration file `opera.ini` is stored in the following location:

```
/mnt/nv
```

For a full explanation of the Opera Settings File see <http://www.opera.com/support/usingopera/operaini/>

2.10.1 How to view or change settings

The browser configuration file is supplied as part of a software release, it is in the following location:

```
<release_name>/upgradeimage/imagecomponents/
```

Once created or loaded on the set-top box, the browser configuration file `config.txt` is stored in the following location:

/mnt/nv

See your browser's documentation for details of the settings in this file. Also see [Appendix B, "Settings file contents"](#) for a list of browser configuration settings that the configuration pages read from and write to.

2.11 Dynamic DHCP settings file

The dynamic network and multicast upgrade settings retrieved from the DHCP server are stored in a file called `dhcpcd-eth0.info`. These values are only set if the set-top box uses dynamic network settings, otherwise, the static values are defined in the NOR Flash or the `netconf` file. The DHCP values are shown in [Appendix D, "dhcpc file contents"](#) and are read-only.

2.11.1 How to view settings

The DHCP values are stored in the following location on the set-top box:

`/var/dhcpc/dhcpcd-eth0.info`

The values can be accessed via `libconfig` commands (using Telnet/SSH) or JMACX calls.

2.11.2 DHCP - list of settings

The full list of DHCP settings available depends on the DHCP server installed and the Amino vendor options configured, that is, it depends on what values the DHCP server sends to the set-top box. The following table describes the main settings that are generally available. The DHCP values are shown in [Appendix D, "dhcpc file contents"](#) and are read-only.

All values are read-only.

Setting	Description
BROWSER_HOMEPAGE	The address of the page set as the homepage.
DI	The deployment index.
DIMIN	The minimum deployment index
DNS	The IP address of the DNS that the set-top box should be using.
DOMAIN	The network domain.
GATEWAY	The gateway for the set-top box.
IPADDR	The IP address of the set-top box.
LEASE	The DHCP lease time.
MULTICAST_FS_ADDR	The multicast file system IP address.
MULTICAST_FS_PORT	The multicast file system port.
NETMASK	The netmask for the set-top box.
REBIND	The DHCP rebind time.
RENEWAL	The DHCP renewal time.

2.12 File access policy

The file access policy is a security feature used to control which files the user can access through the web browser. The default policies shown in [Section 2.12.1](#) are hard coded in the system. For additional policies a file is created called `policy.def` in which you add any other local files that you might want to access – if they are not in the 'default' list (such as the Management pages).

All access policies are loaded from the file `/mnt/nv/policy.def` to avoid conditional compilation.

This approach means that the only changes to default policy are needed in policy file and in some cases policy file will not be needed at all.

2.12.1 The policy file

Each line of this file is treated as separate policy `<ACCESS_POLICY>: <ACCESS_URL>`, unless it begins with `#` in which case it will be treated as a comment.

`ACCESS_POLICY` has to be one of the following:

- `REJECT`: Access to URL should be rejected
- `ACCEPT`: Access to URL should be accepted
- `PASSWORD`: Access to URL should be accepted only if valid password was entered
- `FIRST_PAGE_ACCEPT`: Access to URL should be accepted only if it is first page accessed by a browser
- `FIRST_PAGE_PASSWORD`: Access to URL should be accepted only if it is first page accessed by a browser AND valid password was entered
- `IGNORE`: Access to URL will be granted, but policy will not invalidate password-protection on entering new URL.

All policies are checked in the same order in which they are located in the policy file, the first `ACCESS_POLICY` from matching policy is returned.

If all policies are checked and no match was found, then the `REJECT` is returned.

A policy is matching if its `ACCESS_URL` is the same as URL that is being checked, unless `ACCESS_URL` ends with `*` in which case all URLs that begins with `ACCESS_URL` (without `*`) are also found as matched.

2.12.2 Default policies

```
#Anything not in this file will be automatically rejected
ACCEPT:file:///etc/htdocs/preference.html
ACCEPT:file:///etc/htdocs/keyboard.html
ACCEPT:file:///etc/htdocs/subtitles.html
ACCEPT:file:///etc/htdocs/video-pref.html
ACCEPT:file:///etc/htdocs/audio-pref.html
ACCEPT:file:///etc/htdocs/pvr.html
ACCEPT:file:///opt/fresco/htdocs/dvbt*
ACCEPT:file:///opt/fresco/htdocs/ozone*
#
#Password protect rest of the docs
PASSWORD:file:///etc/htdocs/*
```

2.12.3 Example policy file

```
ACCEPT:file:///mnt/nv/startup.html
ACCEPT:file:///mnt/nv/nonetaccess.html
```

Chapter 3—Using STBremoteconf

This chapter describes how to set up and use the `STBremoteconf` Linux client to control and manage AmiNET set-top boxes. It assumes a basic multicast upgrade system is installed and that the user is familiar with simple Linux command line functionality. For general information on how to set up and manage the multicast upgrade system, see the *Amino Install and Upgrade Guide*.

3.1 STBremoteconf

`STBremoteconf` provides a mechanism for remotely configuring and controlling a local network of AmiNET set-top boxes. It can be run on the command line by sending commands individually to one or more set-top boxes, or commands can be collected into a script to save time. Commands are signed when they are created, so that the set-top box can check that the command has been sent by an authorised source.

Example functions include rebooting, modifying output modes or updating software, as well as viewing information about the set-top box.

3.1.1 How it works

`STBremoteconf` consists of a client application on a local PC and a server application `STBrxd` installed on the set-top box. `STBremoteconf` is operated by entering commands at the command line or by collecting commands into a script.

A normal operational sequence is as follows:

1. **Enter command:** The user enters a command at the command line on the PC. This includes specifying whether the command is to be sent to a single set-top box, sent to a multicast group, or saved for later use.
2. **Sign command:** The user is prompted to enter the passphrase for the configuration key, and then `STBremoteconf` signs the command. It also adds an expiry time after which the command will no longer be valid. By default this is 30 seconds after the time at which the command was signed.
3. **Send command:** If the command is to be sent to a single set-top box or to a multicast group, it is sent immediately. If the command is saved to be sent later, a confirmation confirms that it has been saved, a separate `STBremoteconf` command allows saved commands to be sent.
4. **Verify command:** When the set-top box receives a command, the set-top box also uses its stored public configuration key to check that the command has been authorised, and rejects commands that are not authorised. It then checks the expiry time for the command against its internal clock. If the current time is later than the expiry time, it rejects it. This ensures that even if signed commands are used in a capture and replay attack, replaying them later will have no effect on the set-top boxes. For this reason, the set-top box and the PC that the `STBremoteconf` client is installed on must use correct date and time settings.

5. **Execute command:** The set-top box executes the command using `STBrC`, and generates the appropriate response.
6. **Command response:** For commands sent to a single set-top box, a response containing the information requested or confirmation that the command was executed (or an error report) is returned to the sending PC for display. There is no multicast response channel, so for commands sent to a multicast group, no response is transmitted by the set-top boxes.

3.2 Installation

`STBremoteconf` is normally installed as part of an Amino multicast system. If an Amino multicast system is not installed, follow the installation instructions in the *Amino Installation and Upgrade Guide*.

3.2.1 Before you start

The instructions in this section assume that `STBremoteconf` and other components are to be installed as part of a multicast system. You will need the following:

- You will need to know the pass phrase for the configuration key that you will be using to sign commands. For the Amino engineering key this is `stbrckey`. For further information on the use of passkeys, see the *Amino Installation and Upgrade Guide*.
- To send commands via `STBremoteconf`, you will need to know the IP address of individual set-top boxes, or the address for a multicast group. Set-top boxes must be powered and connected to the network.
- For some of the commands (for example, multicasting commands), the DHCP server and multicast server must be running, and appropriate upgrade images must be available.
- You will need to log in as `root` or have `sudo` rights to send commands via `STBremoteconf`.

3.2.2 Installing STBremoteconf

You will need the following:

- Operating system.

`STBremoteconf` is supplied for use on Linux. The recommended platform is Debian “etch” available from <http://www.debian.org/releases/stable/> and the instructions here assume the use of this platform.

- Installation files

You will need the following files to install and use `STBremoteconf`:

- `STBremoteconf`
- `imgcfg`
- `commands`

These files are normally supplied in the `utils/` subdirectory of a full software release, and are installed as part of the multicast system set-up. If this has already been done, then there is nothing else to do to complete the installation.

- In order to sign commands that you send with `STBremoteconf`, you will also need:
 - A private configuration key file – if you are using the Amino engineering keys, this is `STBrC-KEY.private` (this must match the public key file on the set-top box)
 - Perl modules

The `STBremoteconf` client has dependencies on various external Perl modules. If the required modules are not installed on your system, you will see errors similar to the following when you try to use `STBremoteconf` for the first time:

```
Can't locate IO/Socket/Multicast.pm in @INC (@INC contains:
/usr/lib/perl5/5.8.1/i386-linux-thread-multi...
```

If this happens, you can download and install the required files.

3.2.3 Installing prerequisite Perl modules

The `STBremoteconf` client has dependencies on various external Perl modules. You can either install these before you start installing `STBremoteconf`, or try using `STBremoteconf` and then install the Perl modules required only if errors are reported.

3.2.4 To install the Perl modules required by `STBremoteconf`

The following procedure assumes that you have the Perl `CPAN` module installed and have internet connectivity. You must be logged in as root or have `sudo` rights.

1. Enter the following command:

```
sudo perl -MCPAN -e shell
```
2. If the `cpan>` prompt is not displayed, then you are asked to manually configure it. Answer `no` to force an auto-configuration for CPAN.
3. If you are prompted to install any modules, enter `yes`.
4. Enter the following command:

```
install Bundle::CPAN
```

If you are prompted to install dependencies, enter `yes`.
5. Enter the following command:

```
install Date::Manip
```

If you are prompted to install dependencies, enter `yes`.
6. Enter the following command:

```
install MIME::Base64
```

If you are prompted to install dependencies, enter `yes`.
7. Enter the following command:

```
install File::Copy
```

If you are prompted to install dependencies, enter `yes`.
8. Enter the following command:

```
install IO::Socket::Multicast
```

If you are prompted to install dependencies, enter `yes`.
9. Enter the following command:

```
quit
```

You now have all of the required Perl modules installed and your `STBremoteconf` client should now work.

Note: If you have recent Debian-based platform installed you *may* be able to replace the above stages with the following:

1. Enter the following command:

```
apt-get install libdate-manip-perl libmime-base64-perl libio-socket-multicast-perl
```

3.2.5 Upgrading STBremoteconf client

STBremoteconf client can be installed or upgraded separately from upgrades to set-top box software, but note that if the client and set-top box application are at different versions, only the functionality of the older version will be available. For example, if the new client application includes commands that are not yet implemented in the set-top box software, then the commands will not be available until the set-top box software is also upgraded.

Note: In the following instructions, `<release_name>` indicates the name of the software release image directory that contains your Amino software release. For example, `A110-0.14.0-frescoj27-ami_wm-subs-1` installs in `0.14.0-frescoj27-ami_wm-subs-1`, hence `<release_name>` is `0.14.0-frescoj27-ami_wm-subs-1`.

1. Log in as root, and copy the `imgcfg` to a directory in your path (the other Amino binaries, including `mcastbootd` must also be in this location).

For example:

```
cp <release_name>/utils/imgcfg /usr/local/bin
```

2. Copy the `STBremoteconf` and `commands` files to the location you want to run them from. This can be in the system path or in another location, but the two files must be stored in the same directory as each other.

For example, to copy the files to a directory in the path:

```
cp <release_name>/utils/STBremoteconf /usr/local/bin
```

```
cp <release_name>/utils/commands /usr/local/bin
```

3. Copy the key file to an accessible location. Instructions in this documentation generally assume it is in the following subdirectory of an Amino release: `/utils/keys/amino/`.

The upgrade is complete.

3.3 Removing STBremoteconf

In order to remove STBremoteconf you will need to delete the following files:

- `STBremoteconf`
- `imgcfg`
- `commands`

These files are normally supplied in the `utils` subdirectory of a full software release.

3.4 Sending commands with STBremoteconf

The following steps outline an example command line interaction with STBremoteconf.

3.4.1 To send a command at the command line

The following steps assume you have not copied the `STBremoteconf` files to a directory in the system path (for example, `/usr/local/bin`). If you have done this, you do not need to navigate to the directory that the `STBremoteconf` file is stored in, and you do not need to enter `./` at the start of each command.

Note: In the following instructions, `<release_name>` indicates the name of the software release image directory that contains your Amino software release. For example, `A110-0.14.0-frescoj27-ami_wm-subs-1` installs in `0.14.0-frescoj27-ami_wm-subs-1`, hence `<release_name>` for this is `0.14.0-frescoj27-ami_wm-subs-1`.

1. Set the `STBKEY` environment variable by entering a command in the following format:

```
export STBKEY=<release_name>/utils/keys/amino/STBrc-KEY.private
```

Note: In order to set `STBKEY` as a permanent environment variable, add the above `export` command to your `.bashrc` file.

2. Navigate to the directory that the `STBremoteconf` file is located in.

For example:

```
cd <release_name>/utils
```

3. Enter a command in the following format:

```
./STBremoteconf [<optional_arguments>] <host>  
                  <command_option [parameter]>
```

For example, enter the following command to find out the software version on the set-top box with the IP address 123.4.5.67:

```
./STBremoteconf -p 110,120 225.10.10.10 GETVERSION
```

4. You are prompted to enter the pass phrase for the configuration key. For the Amino engineering configuration key this is `stbrckey`.

Note: The passphrase can be set as the environment variable `STBPASS`, in the same way as for the `STBKEY` variable

If the command syntax and IP address(es) entered are valid, the client command is sent, and for non-multicast operations (that is, commands sent to a single set-top box) a confirmation message is displayed which includes a status code returned by the set-top box. For multicast operations there is no return channel so confirmation is not sent.

If you have your own keys then you will have your own, different, passphrase.

You can now enter further commands, as required.

3.5 Using scripts to control STBremoteconf

`STBremoteconf` typically reads the location of the private key file from an environment variable, and the passphrase associated with it from input from the user when a message is sent. In some cases, such as where some degree of autonomy may be required, it is desirable not to be prompted for a passphrase. To do so, the value of the passphrase required can be stored in the `STBPASS` variable. For example, assuming that the Amino engineering keys are being used, the commands required to set this up would be:

```
export STBKEY=/usr/local/amino/keys/amino/STBrc-KEY.private  
export STBPASS=stbrckey
```

These environment settings would only remain valid in the current shell session. For complete autonomy, these export statements could be added to the user's `.bashrc` file, or other shell settings file, dependent on the Linux distribution being used.

If the two export variables were set, no request for a passphrase would be made by `STBremoteconf` when sending a message. Anyone using this feature should be aware of the potential security implications of storing the passphrase for the private key in this unprotected form.

3.6 STBremoteconf parameter syntax

`STBremoteconf` is operated by entering commands with the following syntax:

```
./STBremoteconf [-p <product_list>] [-e <expiry>] [-t <multicast_ttl>]
[-P <port>] <host> <command_options [<parameters>...]>
```

Argument	Usage
-p <product_list>	A comma-separated list of product codes that you want the command to apply to. For example: -p 110,130,110h
-e <expiry>	Time at which the message will expire. If you do not include this argument, it defaults to 30 seconds from the current time. The time specified should be acceptable to the ParseDate Perl command. For example: "today" "1st Thursday in June 2008" "05/10/07" "12:30 Dec 12th 1880" "8:00pm December tenth"
-t <multicast_ttl>	Network time-to-live value for the message. The purpose of the TTL field is to avoid a situation in which an undeliverable datagram keeps circulating on an internet system, and such a system eventually becoming swamped by such immortal datagrams. In theory, time to live is measured in seconds, although every host that passes the datagram must reduce the TTL by at least one unit. In practice, the TTL field is reduced by one on every hop.
-P <port>	Port to send the command on. For unicast, the default port is 54321. For multicast, the default port is 22222.
<host>	The <code>host</code> argument that specifies where the command will be sent or enables you to save the command for use later. See below for more information.
<command_options [<parameters>...]>	The command that will be executed.

Alternatively, you can enter the command `./STBremoteconf` without any arguments to display help at the command line.

Note: If you have copied the `STBremoteconf` to a directory in the system path (for example, `/usr/bin`), you can enter the commands without the `./` at the start.

3.6.1 <host> argument

The `<host>` argument must be included in all commands. It can be set with one of the following types of value, depending on where you want the command to be sent:

`<multicast_group>`

To send the command to all set-top boxes listening on a particular multicast group, enter the IP address of the group (for example, as defined in the DHCP server configuration or in the set-top box's configuration). If no group has been configured on the set-top box, the default address `225.10.10.10` is used.

Note: There is no return channel for status messages to be returned when multicasting, so no confirmation can be sent, and many commands that request information such as version or status cannot be sent to a multicast group.

`<unicast_IPaddress>`

To send the command to a single set-top box listening on the network, enter the IP address for the box. Alternatively, you can enter a valid name (which has a DNS entry). You should send commands to a single box in this way if you want to configure settings for a single box, or if the command returns information such as status or version.

If the IP address is invalid, then the following error is returned:

`Couldn't convert to internet address: Resource temporarily unavailable.`

If the IP address is valid, but the set-top box does not respond to the command (for example, the set-top box is not connected or the address has not been allocated by the DHCP server), then the following error is returned:

`Couldn't connect: Connection refused`

3.6.2 SAVE

To sign a command and save it for multicasting or unicasting later, replace `<host>` with `SAVE`. This is useful as it allows you to collect multiple signed commands together to be transmitted altogether later, or to give a signed command to a third party that it is not appropriate to give keys to.

`STBremoteconf` saves the signed command to a `SAVEFILE.msg` file in the current directory, and you can send it later using the `SIGNEDCMD` command option.

Note: Although the `SAVE` command can be used, for instance, to create a batch of multicast or unicast commands, the expiry time (the default is 30 seconds) from the time the command is signed still applies. This means that each command must be multicast/unicast before its expiry time is reached. The `-e` parameter can be used to specify a longer expiry time.

For example:

```
STBremoteconf -e "December 16th 2009" SAVE REBOOT
```

3.6.3 <command_options> argument

The `<command_options>` argument must be included in all commands, and specifies the operation you want to execute. Some options also require additional parameters. See ["Overview of command options" on page 26](#) for a list of available options.

3.6.4 Overview of command options

You can add one of the following to the `STBremoteconf` command. Alternatively, enter the command without adding any options to view `STBremoteconf` version information and a full list of available commands at the command line. (see the full command list for details of when they should be used). You should only use these if you are fully aware of the implications for your set-top box.

Command	Usage
<code>CHANGEPAGE <url></code>	Displays the page specified on the set-top box browser.
<code>CHANGE-PWORD <username></code>	Changes set-top box user passwords.
<code>CHANNEL <channel_number></code>	Changes the channel of one or more set-top boxes.
<code>EAS <message></code>	Sends an EAS (Emergency Alert System) message.
<code>ETHERNET <value></code>	Sets the Ethernet speed.
<code>GETDI</code>	Returns the deployment index.
<code>GETVERSION</code>	Returns the current software version on the set-top box.
<code>HWINFO</code>	Returns information about the set-top box hardware.
<code>LOGREAD</code>	Returns last few entries from syslog.
<code>OUTFMT<format></code>	Sets the output format of the set-top box.
<code>OUTRES</code>	Sets the output resolution. (HD-capable boxes only)
<code>PING <remote_host> <count> <backoff_secs></code>	Instructs set-top box to send ICMP echo (ping) requests to a remote host.
<code>PROC <proc_entry></code>	Sends specified <code>proc</code> entry to the set-top box.
<code>PS</code>	Runs the <code>ps</code> process on the set-top box.
<code>REBOOT</code>	Reboots the set-top box.
<code>REFLASH</code>	Wipes the NAND flash on the set-top box, then download new software.
<code>REFORMAT</code>	Erase the hard drive of the set-top-box. The set-top boxes that do not have an hard drive will not be affected.
<code>RFMODE <option></code>	Enables/disables or resets the RF modulator on the set-top box (if there is one).
<code>STATS</code>	Returns status information about the set-top box.
<code>SYSLOG <new_host></code>	Redirects the set-top box's <code>syslog</code> to the specified new host.
<code>TVSYSTEM <option></code>	Sets the TV standard to be used.
<code>UPGRADEMCAST <IPaddress> <port></code>	Instructs set-top box to upgrade to software available at multicast group specified.
<code>UPGRADEMCAST_VER <IPaddress> <port> <software_version_string></code>	Instructs set-top box boxes running different software versions to upgrade to the specified version.
<code>VOD <option></code>	Executes Video-on-Demand operations.

3.7 List of commands

The following is a list of the STBRemoteconf commands supported at present.

CHANGEPAGE

Instructs the web browser to go to a specific URL. Whatever the user is viewing at the time will be interrupted, including video.

Usage

```
./STBremoteconf <host> CHANGEPAGE <url>
```

Example

```
./STBremoteconf 225.10.10.10 CHANGEPAGE "http://www.aminocom.com"
```

CHANGE-PWORD

Changes the specified user password on the set-top box. Note that this option only works with set-top box software versions that have been set up to allow it, this is **not** enabled in standard releases.

You are prompted to enter the new password twice (to catch any typing error, as the password you type is not echoed to the display). An error is returned if the user name does not exist or password-changing is not supported in the set-top box.

Warning:

Amino strongly recommends that you change the default passwords when deploying our set-top boxes. See below for information on changing these default passwords.

The following users are recognised:

User name	Description	Default password
root	Used for Telnet / serial console access on development builds.	root2root
mngread	Used for access to the set-top box management pages.	leaves
mngwrite	Used to write back changes from the set-top box management pages.	snake
identity	Used for changing the set-top box identity parameters (e.g. MAC address) from the set-top box management pages. This functionality is only available in production set-top boxes, and disabled during manufacture.	tiger

Usage

```
./STBremoteconf <host> CHANGE-PWORD <username>
```

Example

```
./STBremoteconf 10.172.227.145 CHANGE-PWORD mngread
```

Example response interaction

```
Enter new password for user 'mngread':
Retype new password for user 'mngread':
Unicasting...
Passphrase (for key <key setup in STBKEY env. variable>):
Signed image written to '/tmp/TMPFILE.signed'
Got back: OK
```

CHANNEL

Changes the current channel of a single or multiple set-top boxes.

Note: This command will not work on an AmiNET530 with a Minerva build installed.

Usage

```
./STBremoteconf <host> CHANNEL <channel_number>
```

Example

```
./STBremoteconf 225.10.10.10 CHANNEL 123
```

EAS

Sends an EAS (Emergency Alert System) message. It is the responsibility of the middleware running on the set-top box to act on this message and perform any required operations.

Usage:

```
./STBremoteconf <host> EAS <message>
```

Example:

```
./STBremoteconf 225.10.10.10 EAS "<XML><Message>
                                     This is a message</Message><XML>"
```

To receive the message on the STB you need to use the AminoGeneric class. The service number for the STBremoteconf EAS service is 13.

Usage example-Fresco

```
// The event handler itself
function eventhandler(xml_event_string)
{
    alert ("Message sent to eventhandler - " +
    xml_event_string) ;
}
// Register the event handler for unique service identifier ID of 13 (EAS)
AminoGeneric.onEvent13=eventhandler ;
```

Usage example - Opera

The function definition is the same as for Fresco browsers, but the registration is:

```
AminoGeneric.onEvent13="eventhandler";
```

For further information see Amino *Technical Note 024 - Using AminoGeneric*.

ETHERNET

Restricted: Not for use with OTP set-top boxes.

Sets the Ethernet speed to one of the following values:

```
AUTO
10HD
10FD
100HD
100FD
```

Usage

```
/STBremoteconf <host> ETHERNET <value>
```

Example

```
/STBremoteconf 225.10.10.10 ETHERNET 100FD
```

FETCHFILE

Restricted: Not for use with OTP set-top boxes.

Copies the specified file from the set-top box location and stores it locally.

Usage

```
./STBremoteconf <host> FETCHFILE <local_filepath> <remote_filepath>
```

Example

```
./STBremoteconf 225.10.10.10 FETCHFILE config.txt /mnt/nv/config.txt
```

GETDI

Returns the deployment index. This command is only useful via unicast.

Usage

```
./STBremoteconf <host> GETDI
```

Example

```
./STBremoteconf 10.172.227.145 GETDI
```

GETVERSION

Returns the software version of a box. This command is only available via unicast.

Usage

```
./STBremoteconf <host> GETVERSION
```

Example

```
./STBremoteconf 10.172.227.145 GETVERSION
```

Example response

```
Got back: 0.16.3-opera9
```

HWINFO

Returns the product, board revision and ROM type of the set-top boxes. For unicast only.

Usage

```
./STBremoteconf <host> HWINFO
```

Example

```
./STBremoteconf 10.172.227.145 HWINFO
```

Example response

```
aminet110 (revision 2) ROM type: 0xc222-SS-S4
```

LOGREAD

Returns the last few entries from syslog. This command is only useful via unicast.

Usage

```
./STBremoteconf <host> LOGREAD
```

Example

```
./STBremoteconf 10.172.227.145 LOGREAD
```

OUTFMT

Sets the output format.

Restricted: Not for use with OTP set-top boxes.

Usage

```
./STBremoteconf <host> OUTFMT <new output format>
```

Example

```
./STBremoteconf 225.10.10.10 OUTFMT CVBS-LC
```

The options are:

Value	Meaning
"CVBS-RGBOFF"	Enable composite output without RGB (where available)
"CVBS-RGBON"	Enable composite output with RGB (where available)
"LC-RGBOFF"	Enable S-video output without RGB (where available)
"LC-RGBON"	Enable S-video output with RGB (where available)
"CVBS-LC"	Enable composite with S-Video (where available)
"CVBS-LBR"	Enable composite and component (YPbPr) (where available)
"LBR-CVBS-LC"	Enable composite, S-Video and component (YPbPr) (where available)
"RGB-CVBS-LC"	Enable RGB with composite with S-video outputs (where available)

OUTRES

Sets the output resolution. This command is only supported by HD-capable set-top boxes (for example, A120, A130, A530).

The correct frequencies for these settings are detected using TVSYSTEM. This is done to try and limit accidental misconfiguration.

The output resolution will be one of the following:

```
SD
480p
576p
720p
108i
```

Usage

```
./STBremoteconf <host> OUTRES <new output resolution>
```

Example

```
./STBremoteconf 225.10.10.10 OUTRES 720p
```

PING

Instructs the set-top box to send a number of ICMP echo (ping) requests to a remote host. In a network with multiple set-top boxes, this command can be multicast and then the network can be monitored for replies, to determine which set-top boxes received the message.

Usage

```
./STBremoteconf <host> PING <remote_host> <count> <backoff_secs>
```

where

<count>	Specifies the number of echo requests to send.
<backoff_secs>	Specifies how long to wait before sending the first request (in seconds). If you specify a <code>backoff_secs</code> parameter of zero, the set-top box sends the ICMP echo requests as soon as it receives the message. If <code>backoff_secs</code> is greater than zero, the set-top box waits a random time interval between zero and <code>backoff_secs</code> seconds before sending the first ICMP echo, followed by one second between each request.

Example

```
./STBremoteconf 225.10.10.10 PING 139.255.1.1 10 0
```

PROC

Queries the set-top box for the value of the specified `proc` entry, for example, to query memory usage.

Note: The Linux command `cat /proc/<proc_entry>` will give the same information as using `PROC <proc_entry>`. This command is only useful via unicast.

Usage

```
./STBremoteconf <host> PROC <proc_entry>
```

Example

```
./STBremoteconf 10.172.227.145 PROC meminfo
```

PS

Performs a linux `ps` on the set-top box. This command is only useful via unicast.

`ps` displays information about a selection of the active processes.

Usage

```
./STBremoteconf <host> PS [option]
```

Note that the only option presently available is the `-w` switch.

Note: The `-w` switch increases the number of characters displayed on each line of output from the `ps` command from 79 to 255.

Example

```
./STBremoteconf 10.172.227.145 PS -w
```

REBOOT

Triggers a reboot of the set-top box, which is most useful when restarting the device after making configuration changes in unicast mode. The command returns a status code indicating whether the command was accepted. Not permitted in multicast mode.

Note: The set-top box automatically reboots after some commands, such as a `MCAST_UPGRADE`.

Usage

```
./STBremoteconf <host> REBOOT
```

Example

```
./STBremoteconf 10.172.227.145 REBOOT
```

REFORMAT

Erase the hard drive of the set-top-box.

Set-top boxes that do not have an hard drive will not be affected.

The set-top box will reboot to perform this command.

The command returns a status code indicating whether the command was accepted.

Note: All the content of the hard drive will be erased.

Note: The command is not permitted in multicast.

Usage

```
./STBremoteconf <host> REFORMAT
```

Example

```
./STBremoteconf 225.10.10.10 REFORMAT
```

REFLASH

Requests a reflash of the set-top box. Reflashing refers to deleting all the contents of the NAND flash and replacing, via the bootstrap method (`bootstrap.signed`), the main software image (`mcs.mfs`). The update is done by formatting the flash memory and reloading it from the appropriate server. Before using this command, ensure that valid software exists, and that no attempt is made to interact with the device (such as disconnecting mains power) during the update process. This command wipes any persistent setting stored in the NAND flash (`/mnt/nv`).

Note: If an upgrade is required rather than a reflash then see the `UPGRADEMCAST` command. For further information on the differences between upgrading and reflashing the STB see the *Amino Install and Upgrade Guide*.

Usage

```
./STBremoteconf <host> REFLASH
```

Example

```
./STBremoteconf 225.10.10.10 REFLASH
```

RFMODE

Enables or disables the RF modulator (if present) and/or changes the current RF channel.

The following options are available:

Option	Description
<channel> ENABLE	Sets the RF channel to <channel> and enables the RF modulator.
<channel> DISABLE	Sets the RF channel to <channel> and disables the RF modulator.
<channel> PRESERVE	Sets the RF channel to <channel> and does not change the current setting of the RF modulator.
<channel>	Sets the RF channel to <channel> and does not change the current setting of the RF modulator.
ENABLE	Enables the RF modulator for the current RF channel.
DISABLE	Disables the RF modulator for the current RF channel

Usage

```
./STBremoteconf <host> RFMODE <option>
```

Example

This sets the RF channel to 38 and enables the RF modulator.

```
./STBremoteconf 225.10.10.10 RFMODE 38 ENABLE
```

SAVEFILE

Restricted: Not for use with OTP set-top boxes.

Uploads a local file to the set-top box file store. This is particularly useful when setting a unique configuration to a device by replacing its `config.txt` file. Specifying the local file name followed by the full path to store the file on the set-top box.

The local file name is validated to ensure that it exists. The remote name is not validated. If the remote name is specified without directory information, the file is stored in the root folder. You can specify the complete path for the remote file name, but only existing folder names can be used (it is not possible to create sub-folders within the set-top box storage with this command).

Usage

```
./STBremoteconf <host> SAVEFILE <local_filepath> <remote_filepath>
```

Example

```
./STBremoteconf 225.10.10.10 SAVEFILE config.txt abcde.txt
```

This stores the file `config.txt` as `abcde.txt` in the root folder of the set-top box.

SIGNEDCMD

Sends a pre-prepared signed command out. This requires a file generated by STBremoteconf using the SAVE command and allows the user to send out a command without needing a password or a private key, so it can be useful to allow untrusted parties to submit commands.

Usage

```
./STBremoteconf <host> SIGNEDCMD <file>
```

Example

```
./STBremoteconf 10.172.227.145 SIGNEDCMD SAVEFILE.msg
```

STATS

Returns a set of status values for the set-top box. This command is only useful via unicast.

Note: A full description of the meanings of the returned parameters is available in Amino Technical Note 030 *'The STBremoteconf stats command'*.

Usage

```
./STBremoteconf <host> STATS
```

Example

```
./STBremoteconf 10.172.227.145 STATS
```

Example of the types of values returned

```
Got back: MACADDRESS: 00:02:02:03:bd:97

(last_skip_timestamp skips_in_this_movie total_skips)
0 0 0
(last_error_timestamp errors_in_this_movie total_errors)
0 0 0
(timestamp_of_movie_start current_time)
0 76319
0 0
(last_overflow_timestamp overflows_in_this_movie total_overflows
last_underflow_timestamp underflows_in_this_movie total_underflows fullness)
```

```

0
0 0 0
0 0 0
0
(last_overflow_timestamp overflows_in_this_movie total_overflows
last_underflow_timestamp underflows_in_this_movie total_underflows fullness)
0 0 0
0 0 0
0
(top_bit:other_32)
0:0

```

```

Inter-|   Receive   |   Transmit
face |bytes   packets errs drop fifo frame compressed multicast|bytes
packets errs drop fifo colls carrier compressed
lo:    0      0  0  0  0  0      0      0      0
0  0  0  0  0      0
eth0: 438308  3116  0  0  0  0      0      2925      0
135  0  0  0  0      0      0

```

```

          total:      used:      free:  shared: buffers:  cached:
Mem:  31207424 18276352 12931072          0  176128 11268096
Swap: 27258880          0 27258880
MemTotal:          30476 kB
MemFree:          12628 kB
MemShared:          0 kB
Buffers:           172 kB
Cached:           11004 kB
SwapCached:         0 kB
Active:            2012 kB
Inactive:          12956 kB
HighTotal:          0 kB
HighFree:           0 kB
LowTotal:           30476 kB
LowFree:            12628 kB
SwapTotal:          26620 kB
SwapFree:           26620 kB

```

SYSLOG

Redirects the set-top box's syslog to the new host you specify. Syslog handles logging of various event and debug messages on the set-top box. You can redirect the output to an alternative host, such as a local PC. (Please refer to syslog documentation available on-line for more information about syslog set-up.)

For further information on Syslog, see <http://www.syslog.org/wiki/Main/SyslogHome>.

Usage

```
./STBremoteconf <host> SYSLOG <new_host>
```

Example

```
./STBremoteconf 225.10.10.10 SYSLOG 234.56.78.0
```

TVSYSTEM

Changes the TV standard to one of a predefined set of values.

The following options are available:

```
PAL-I
PAL-M
PAL-N
PAL-G
PAL-B
PAL-H
NTSC-J
NTSC-M
```

Value	Example region
PAL-I	UK
PAL-M	Brazil
PAL-N	Argentina
PAL-G	Europe
PAL-B	Australia, Ghana
PAL-H	Belgium
NTSC-J	Japan
NTSC-M	USA

A complete list of the Worldwide TV Standards can be found in the *Amino TV Standards Guide*.

Usage

```
./STBremoteconf <host> TVSYSTEM <option>
```

Example

```
./STBremoteconf 225.10.10.10 TVSYSTEM PAL-I
```

UPGRADEMCAST

Instructs one or more set-top boxes to upgrade to the software offered on a particular multicast group. This command is only valid for software versions supporting multicast upgrade (it is not valid for TFTP booting software versions). A software version must be multicasting on the specified group when the command is sent. Once the upgrade is complete, the set-top box will automatically reboot into the new version, you can use the `GETVERSION` command to check that the new software version is in use.

This command retains various persistent settings files held in the flash, such as `settings` and `netconf`. For more information on the settings files see [Appendix B, "Settings file contents"](#), for more information on `netconf` see [Appendix C, "Netconf file contents"](#).

Usage

Upgrading one STB

```
./STBremoteconf <host> UPGRADEMCAST <IPaddress> <port>
```

Upgrading multiple STBs.

```
./STBremoteconf -P <port> <Multicast Address of STBs Listen> UPGRADEMCAST  
<Multicast Upgrade address> <Upgrade port number>
```

Examples

Upgrading one STB.

```
./STBremoteconf 10.172.227.145 UPGRADEMCAST 239.255.1.1 12345
```

Upgrading multiple STBs.

```
STBremoteconf -P 1111 239.39.39.1 UPGRADEMCAST 239.240.1.1 11111
```

UPGRADEMCAST_VER

Instructs set-top boxes to upgrade to a specified software version. It is only valid for software versions supporting multicast upgrade (it is not valid for TFTP booting software versions). The command takes three parameters: a numeric multicast address, a port number and the full software version string. A software version must be multicasting on this group when the command is sent. The set-top box compares its current software version string with the upgrade version string specified, and only upgrades if the strings are different. Once the upgrade is complete, the set-top box will automatically reboot into the new version.

Usage

```
./STBremoteconf <host> UPGRADEMCAST_VER <IPaddress>  
                                     <port> <version_string>
```

Example

```
./STBremoteconf 225.10.10.10  
UPGRADEMCAST_VER 2 255.50.50.51 11111 0.16.7-opera9
```

VOD

Allows remote video on demand operations to be executed. For example, a `PAUSE` operation may be required before you can send another command.

The following video on demand operations are supported:

```
PLAY  
PAUSE  
STOP  
FF  
RW
```

Note: `VOD PLAY` should only be used to resume from a `PAUSE` state. To initiate a new video on demand session remotely, use the `CHANGEPAGE` command to point to the required video on demand resource.

Usage

```
./STBremoteconf <host> VOD <option>
```

Example

```
./STBremoteconf 225.10.10.10 VOD PAUSE
```

Chapter 4—Using libconfig

The `libconfig` configuration tool enables you to interact with set-top box configuration. In most cases, you can retrieve or set any of the available configuration settings.

4.1 Before you start

The instructions in this documentation assume that the set-top boxes you want to communicate with are powered and connected to the network. You will need the following:

- To send commands via `libconfig`, you will need to know the IP address of individual set-top boxes that you want to communicate with.
- To send commands via `libconfig` you will need a command line directly onto the box. This can either be via a `telnet/ssh` session or using a debug cable.
- You will need to know the password for the `root` user on the set-top box. This is `root2root` if you have not changed the default.

If you want to follow the instructions here on using `telnet` to send `libconfig` commands you will need to have software with `telnet` enabled. See [Enabling remote log-in tools](#) for more information on including `telnet`.

Note: Both `Telnet` and `SSH` are normally disabled for roll-out, so you will need to enable it by adding it to the software image on the set-top box.

4.2 libconfig configuration areas

`libconfig` can be used to access various areas of configuration, using a unique prefix for each area. In most cases, `libconfig` can read or write settings, but there are a few exceptions for which `libconfig` access is read-only.

4.2.1 NOR Flash configuration

The NOR Flash contains settings required by the ROM. In some cases, this can include static network settings (these would otherwise be set in the `netconf` file).

4.2.1.1 libconfig prefix

To create the key for use in `libconfig` commands, prefix the setting name with `NORFLASH`. For example, for the `DI` setting, the `libconfig` key is `NORFLASH.DI`.

4.2.2 “Settings” configuration

The `settings` file contains various set-top box settings, such as languages, volume ranges and keyboard configuration.

4.2.2.1 libconfig prefix

To create the key for use in `libconfig` commands, prefix the setting name with `SETTINGS`. For example, to access the `RTSPSERVER` setting, the `libconfig` key is `SETTINGS.RTSPSERVER`.

For example:

```
libconfig-set SETTINGS.RTSPSERVER bitband
```

4.2.3 Hostname configuration

The `hostname` file contains just a single setting, that specifies the name of the set-top box.

4.2.3.1 libconfig prefix

To create the key for use in `libconfig` commands, prefix the setting name with `HOSTNAME`. For the `HOSTNAME` setting, the `libconfig` key is `HOSTNAME.HOSTNAME`.

4.2.4 Netconf configuration

The `netconf` file contains network configuration settings. In some cases, the set-top box reads these settings from the NOR Flash instead of from this file.

4.2.4.1 libconfig prefix

To create the key for use in `libconfig` commands, prefix the setting name with `NETCONF`. For example, to access the `DHCPTIMEOUT` setting, the `libconfig` key is `NETCONF.DHCPTIMEOUT`.

4.2.5 Usersettings configuration

The `usersettings` file contains settings that the set-top box user controls (for example, through the Preferences pages). These override the values specified for the same settings in the `settings` file. The values persist when a new software image is loaded to the set-top box, but not if the box is reflashed.

4.2.5.1 libconfig prefix

To create the key for use in `libconfig` commands, prefix the setting name with `USERSETTINGS`. For example, for the `PREFERRED_LANG` setting, the `libconfig` key is `USERSETTINGS.PREFERRED_LANG`.

4.2.6 DHCP configuration

The dynamic network and multicast upgrade settings retrieved from the DHCP server are stored in a file called `dhcpcd-eth0.info`. These values are only set if the set-top box uses dynamic network and multicast upgrade settings, otherwise, the static values are defined in the NOR Flash or the `netconf` file. The DHCP values are read-only.

4.2.6.1 libconfig prefix

To create the key for use in `libconfig` commands, prefix the setting name with `DHCP`. For example, for the `DNS` setting, the `libconfig` key is `DHCP.DNS`.

4.3 Using libconfig to get and set values

The following section describes how to set new configuration values. We provide a command line utility `libconfig-set` to set configuration values. `libconfig-get` can be used to query the values.

4.3.1 libconfig-set command syntax

The libconfig commands for setting and querying set-top box configuration have similar syntax:

```
libconfig-set <config_key> "value"
```

or

```
libconfig-get <config_key>
```

Argument	Usage
<config_key>	Key formed from a prefix that relates to the configuration area and the name of the setting. For example, for the <code>DEFAULT_VOLUME</code> setting in the <code>settings</code> file, the key is <code>SETTINGS.DEFAULT_VOLUME</code> .
<value>	Specifies the new value for the configuration setting. Only required for the <code>libconfig-set</code> command. Note: If this value contains any spaces, it must be enclosed in quotation marks (for example: <code>"file name.txt"</code>), otherwise, the quotation marks are not required.

For example:

```
libconfig-get SETTINGS.DEFAULT_VOLUME
```

or

```
libconfig-set SETTINGS.DEFAULT_VOLUME "80"
```

4.3.2 To set a value via Telnet

The following steps outline how to send libconfig commands via Telnet.

Note: This is usually disabled for security reasons.

1. From a console window, Telnet to the set-top box.
For example, if your set-top box's IP address is 123.4.5.67, enter the following command:

```
telnet 123.4.5.67
```
2. You are prompted to enter log-in details. The user name to log in as is `root`, the password is `root2root` (unless you have changed the password for the root user).
3. Enter libconfig commands, as required.

For example:

```
libconfig-get SETTINGS.DELAY_FACTOR
```

This command returns the `DELAY_FACTOR` setting from the `SETTINGS` file on the set-top box, and displays it in the console, if you request a setting for which no value is set, then no return value is displayed.

For example:

```
libconfig-set SETTINGS.DELAY_FACTOR 5
```

```
[root@AMINET]# libconfig-set SETTINGS.DELAY_FACTOR 5
Setting 'SETTINGS.DELAY_FACTOR'='5'
SETTINGS.DELAY_FACTOR currently '(null)'
[root@AMINET]# libconfig-get SETTINGS.DELAY_FACTOR
[root@AMINET]#
```

The new value (5) is confirmed in the console, followed by a note of the value you replaced:

```
Setting 'SETTINGS.DELAY_FACTOR'='5'
SETTINGS.DELAY_FACTOR currently '(null)'
```

4. When you have finished, exit Telnet by typing the following command:

```
quit
```

4.3.3 To set a value using commands in a script

This is particularly useful if you need to use set values in multiple set-top boxes – for example, to set static network settings.

For an example of this, see ["Creating an upgrade script" on page 47](#).

4.3.4 To set a value using the JMACX API

The `ASTB.SetConfig/ASTB.GetConfig` functions in the JMACX API call `libconfig` functions (see the *Amino JMACX API Specification* for more information).

The set-top box management pages also use the `ASTB.SETConfig/GetConfig` function to modify settings.

Commands take the form:

```
ASTB.SetConfig (<password> , <config_item> , <value>)
```

Example use

```
ASTB.SetConfig (<password>), "SETTINGS.DELAY_FACTOR", "5")
```

```
ASTB.GetConfig ("SETTINGS.DELAY_FACTOR")
```

Parameters	Allowed values	Description
password		The password for the <code>mngwrite</code> user, as required for changing settings on the Management pages of the set-top box.
config_item		String containing the configuration item to set.
value		String containing the value to set the specified configuration item. Suitable values depend on the specified <code>config_item</code> .

Chapter 5—Customising a software upgrade image

You can customise software before it is loaded onto a set-top box by configuring the image components used to create the software upgrade image. The sections in this chapter describe how to configure the image components and provide additional information on some of the important components that you may need to use.

5.1 Configuring image components

Configuring image components enables you to customise the files used to create a software upgrade image. When the `signupgradeimage` script creates a new image, it includes the files that are listed in the `flashcontents` file and stored in the `imagecomponents/` subdirectory of the software release. You can edit these files or add new ones in order to customise the software upgrade image to your requirements.

For example, you can:

- edit configuration files before they are made available to set-top boxes.
- add files needed to enable Telnet, SSH or Dropbear.
- add/edit an `upgrade.sh` script file that the set-top box will execute when it installs the new software upgrade image.
- replace graphics (displayed during the boot stages) with customised versions. For example, the `splash.gif` graphic.

Note: All files in the `imagecomponents/` directory must be listed in the `flashcontents` file, otherwise, the `signupgradeimage` script will fail.

5.1.1 To configure image components

The general procedure for editing image components is as follows:

Note: In the following instructions, `<release_name>` indicates the name of the software release image directory that contains your Amino software release. For example, `A110-0.14.0-frescoj27-ami_wm-subs-1` installs in `0.14.0-frescoj27-ami_wm-subs-1`, hence `<release_name>` for this is `0.14.0-frescoj27-ami_wm-subs-1`.

1. Open the file that you want to edit. The image component files are in the following location:

`<release_name>/upgradeimage/imagecomponents`

Alternatively, you can add a new file to this location - such as a `chnls.txt` file you have copied from a pre-configured set-top box or an `upgrade.sh` file that contains `libconfig` commands to set NOR Flash values.

2. Edit the file, and save your changes.

3. Open the `flashcontents` file, and ensure that the file you have added/edited is listed there. This file is in the following location:

`<release_name>/upgradeimage`

The `flashcontents` file lists the files that will be included in a software upgrade image, and defines permissions for the files.

4. Use the `signupgradeimage` script to create the software image, as usual.

The new software upgrade image includes your new or edited files, and you can use it to upgrade your set-top boxes.

5.2 Editing the flashcontents file

You are only recommended to edit the `flashcontents` file if you are adding new files to the image components used to create a software image, and the files are not currently listed in it. It is supplied in the following location in a software release:

`<release_name>/upgradeimage`

5.2.1 flashcontents file

The `flashcontents` file lists the files that can be included in a software upgrade image, and defines the permissions associated with these files when the software image is installed on the set-top box.

5.2.2 flashcontents file contents

The file contains a list of file names and the permission associated with them, in the following format:

`<permission> <file name>`

For example:

`R AMINET.img`

5.2.2.1 Permissions

The permissions are as follows:

Permission	
R	File cannot be altered by the set-top box (e.g. kernel module, application). If files with R permission are altered or deleted, the set-top box detects an error and reboots.
W	File can be altered by the set-top box (e.g. a configuration file). If these files are deleted from the set-top box, it will not cause an error.
E	File is read-only and can be deleted after it is executed without affecting set-top box operation (e.g. <code>upgrade.sh</code> script).

- Executable image component files must be listed as either R or E, otherwise the `signupgradeimage` script will fail to create the software upgrade image.
- All files in the `imagecomponents/` directory must be listed in the `flashcontents` file, otherwise, the `signupgradeimage` script will fail. If a file is listed in the `flashcontents` file but is not present in the `imagecomponents/` directory, it will not affect the `signupgradeimage` script.

5.2.3 File naming

Files names must not be longer than 12 characters. For further information on the `flashcontents` file, see the *Amino Installation and Upgrade Guide*.

5.3 Creating an upgrade script

An upgrade script `upgrade.sh` contains commands that the set-top box executes when a new software upgrade image is installed. The script is created and installed on the set-top box as part of a software image, and is only executed once, then deleted.

5.3.1 To use an upgrade script

The `upgrade.sh` script is not normally supplied as part of a software release, but you can create your own and add the commands you want the set-top box to execute. For example you can add `libconfig` commands to set static multicast values. Add the file to the image components used to create a software upgrade image and ensure that the script is listed in the `flashcontents` file, with its permission set to `E`.

The script is executed automatically when this software image is installed on the set-top box and is then deleted.

5.4 Enabling remote log-in tools

Telnet or SSH(Dropbear) can be included in the software installed on a set-top box (the tool available depends on the platform), in order to enable remote log-in – for example, to access configuration via `libconfig` commands.

5.4.1 Remote log-in tool availability

The remote log-in tools (Telnet/SSH(Dropbear)) are not included as part of a standard software build or software image for security reasons. If you want to enable these on the set-top box, you can do so by adding them to the image components used to create a new software upgrade image.

For the following platforms – Telnet and SSH(Dropbear) are available:

- AmiNET103
- AmiNET110
- AmiNET110H
- AmiNET500

For more recent builds for other platforms (AmiNET125/130/130H/530) telnet is included by default but is not started on bootup by default.

To enable startup of the telnet daemon at bootup, include a script in `imagecomponents` to start it, for example, `rc.ca_app` or `rc.dmn_app`.

For example:

```
#!/bin/sh
#
# modules start / stop.

. /etc/rc.config

case "$1" in
```

```

start)
echo "Loading telnetd"
telnetd &
;;
stop)
echo "Killing telnetd"
kill -9 `pidof telnetd`
;;
reload|restart)
$0 stop && $0 start
;;
*)
echo "Usage: $0 {start|stop|reload|restart}"
exit 1
esac

```

5.5 Customising graphics

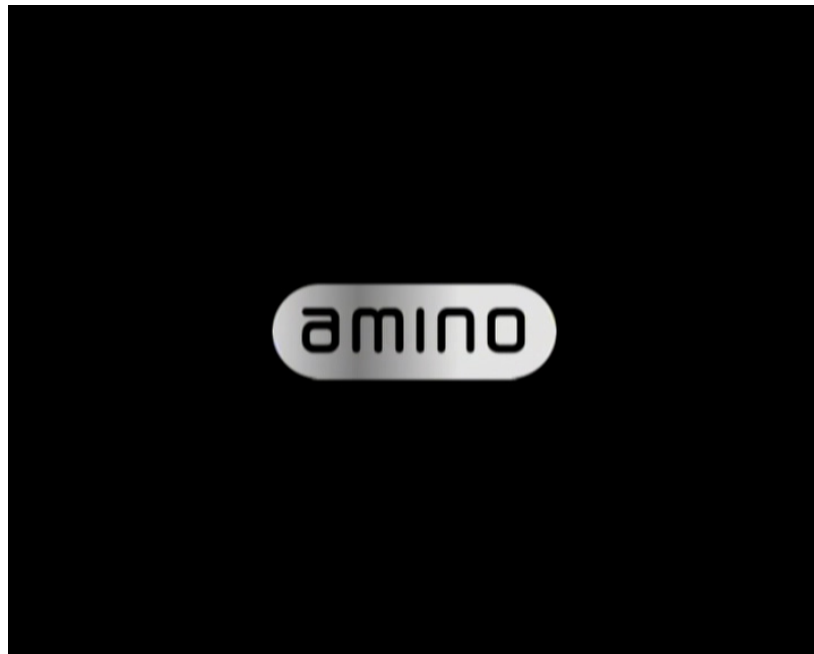
You can replace the graphic displayed during set-top box booting. For TFTP booting set-top boxes, it is also possible to replace the graphic shown during software upgrades.

5.5.1 Graphics used by the set-top box

The following default graphics are supplied with a software release:

5.5.1.1 splash.gif

This is the default graphic shown on screen when the set-top box is booting.

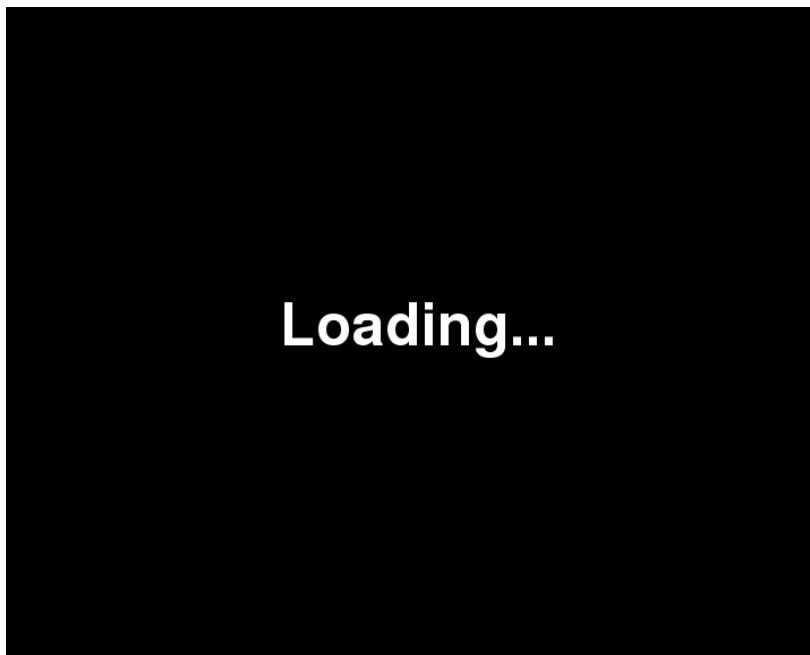


And for Opera 9 builds



5.5.1.2 loading image (multicast)

Multicast upgrades shows a graphic with just the word **Loading...** at this stage, which is part of IntActOS (the Amino operating system) rather than part of the image components supplied with a software release.



Note: The loading graphic shown during multicast upgrades (“**Loading...**”) is part of IntActOS, and cannot be customised. The 'Loading' image is displayed from IntActOS when the box initially multicast boots without firmware. .

5.5.1.3 loading.gif (TFTP)

This is the graphic shown on screen when the set-top box is upgrading via TFTP.



And for Opera 9 builds



The **Upgrading, do not unplug** screen is shown in multicast and TFTP upgrades, once it has downloaded an image from the server (TFTP or multicast).

5.5.2 To replace the default graphics with your own

You can replace the default graphics with your own by replacing the GIF files in the image components used to build a new software upgrade image, then upgrading the software on a set-top box to use this new software image.

Each graphic must be a GIF with the same name as the file you are replacing. Other recommendations are:

- Animated GIFs are not supported (using an animated GIF will prevent the set-top box from booting)
- GIFs must be less than 640 x 480 pixels. If the GIF is larger than the screen dimensions, it will not be displayed.
- Transparent GIFs are not supported, but if you set the transparent colour to 0, the background colour will be undefined.

Note: The graphic is always centred on the screen when it is displayed.

Chapter 6—Set-top box configuration pages for Fresco and Opera 8.5

This chapter describes how to use the Amino set-top box configuration pages, which provide customisation options for both administrators and end-users.

6.1 About the set-top box configuration pages.

Set-top boxes with browsers always include HTML configuration pages, displayed on the television screen, enabling local access and editing of configuration areas.

The pages are divided into an user area (**Preferences pages**)

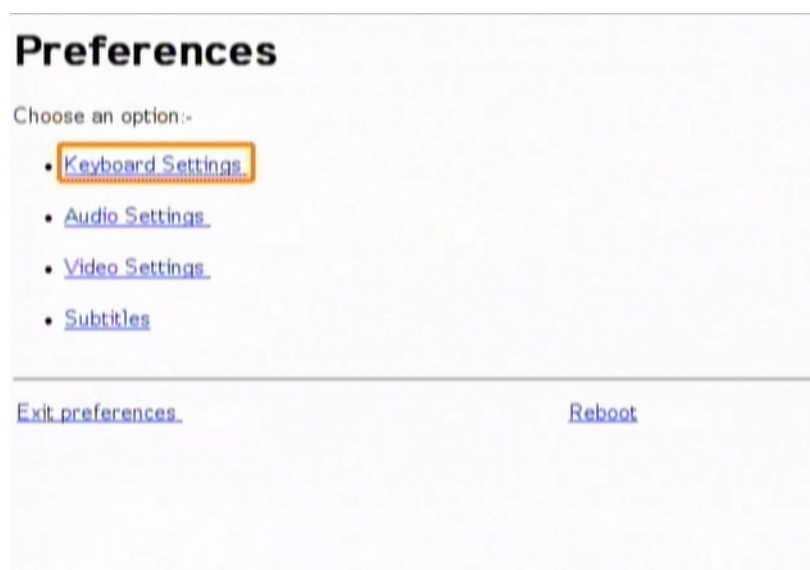


Figure 6.1 Typical Fresco/Opera 8.5 Preferences page

and an administrator area (**Management pages**).

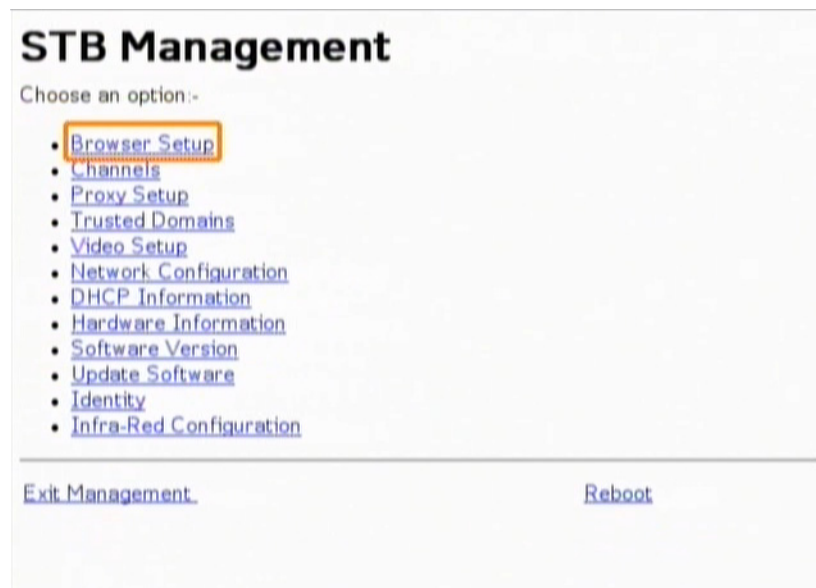


Figure 6.2 Typical Fresco/Opera 8.5 Management page

6.1.1 Changing the configuration settings

A normal sequence for changing configuration via the set-top box configuration pages is as follows:

1. Access the configuration pages

The user presses a combination of keys on the IR keyboard to access the required pages (or via the IR remote control, for the **Preferences** pages). They are required to enter a password before they can access the **Management** pages.

Warning:

Amino strongly recommends that you change the default passwords when deploying our set-top boxes. See Section 4.4 of the Amino *Installation and Upgrade Guide* for information on changing these default passwords.

2. Display the page

The user navigates to the page that contains the settings they wish to change.

3. Edit the setting

Settings are displayed as either text fields or check boxes, which can be edited via the IR keyboard or IR remote control.

4. Save and verify the change

The user clicks on a save button on the screen. For changes via the **Management** pages, another password is required to confirm the change.

5. Write the changes

The set-top box executes the command. In most cases, this involves calling the `libconfig` command that edits the required setting in the relevant configuration area (for example, NOR Flash or settings file).

6.2 Getting started

The instructions in this section assume that the set-top box you want to communicate with is powered and connected to the network.

To use the **Preferences** pages, you will need the following:

- An Amino IR remote control or IR keyboard

To use the **Management** pages, you will need the following:

- An Amino IR keyboard (optionally also an IR remote control)
- You will need to know the password for the `mngread` and `mngwrite` user names on the set-top box. These are `leaves` and `snake` respectively if you have not changed the defaults.

Warning:

Amino strongly recommends that you change the default passwords when deploying our set-top boxes. See Section 4.4 of the Amino *Installation and Upgrade Guide* for information on changing these default passwords.

6.2.1 Keyboard and remote operation of the configuration pages

Although the actual functionality enabled is slightly different, the general ways of communicating with the Management and Preferences pages are similar, and the table below shows some of the remote control buttons and keyboard keys that enable important functionality:

Functionality	Remote control	Keyboard
Move around the items on the page.	Arrow buttons	Arrow keys.
Select an option / press a button on the page.	OK button	Enter key.
Delete text you have entered.	LAST CH button (grey remote control) or P<P button (black remote control)	Back Space key.
Display Preferences pages	MENU button	Alt-P key combination, or Settings button.
Display Management pages		Alt-M key combination.

In general, the **Management** pages require the use of a keyboard. The **Preferences** pages are designed for use with the remote control.

6.3 Preferences pages

The set-top box Preferences pages are a simple interface that enables users to change basic set-top box configuration areas such as video, subtitle and keyboard set-up. The pages are accessed locally via an Amino IR remote control (or keyboard). The Preferences pages are designed for use by end-users.

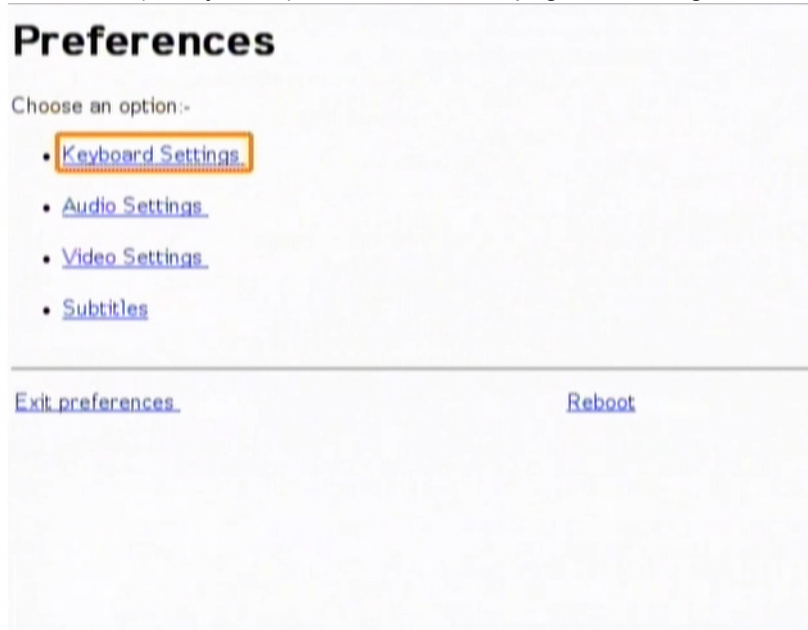


Figure 6.3 Fresco/Opera 8.5 Preferences page for subtitles builds.

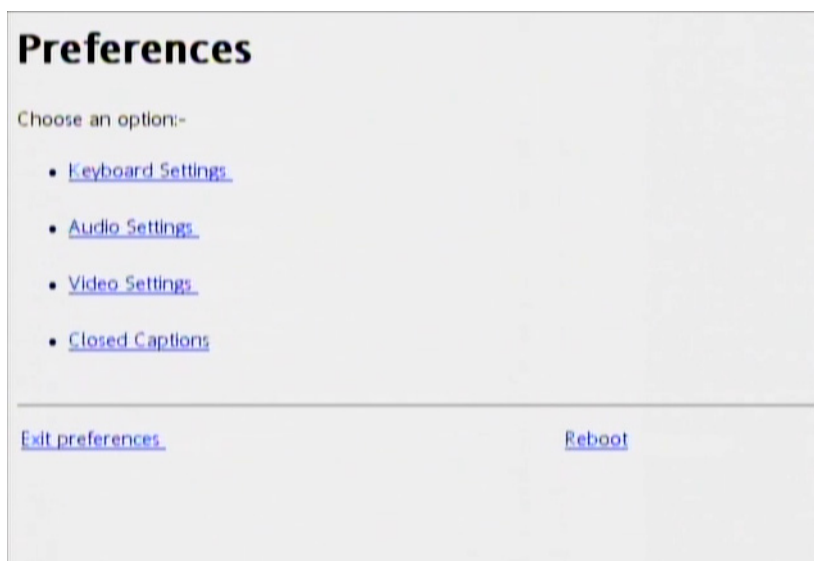


Figure 6.4 Fresco/Opera 8.5 Preferences page for closed caption builds.



Figure 6.5 Fresco/Opera 8.5 Preferences page for PVR set-top boxes

6.4 Using the Preferences pages

The Preferences pages are divided into several areas. When you first access the pages, a menu that lists the available areas is displayed. The actual settings available depend on the software build, but the menu can include the following items:

Area	Allows you to:
Keyboard settings	View and edit keyboard configuration.
Audio Settings	View and edit audio set-up.
Video settings	View and edit TV and video set-up.
Subtitle settings	Changes the way subtitles are displayed.
Exit preferences	Close the preferences pages

6.4.1 Navigation - using the remote control

Once the Preference pages are open, you may use either the keyboard or remote control to navigate around the pages and change settings. The Preferences pages are designed to be able to be used with just the Amino remote control, so the usage instructions all specify what buttons to press on this remote control. It is also possible to use equivalent keyboard options.

- Use the arrow buttons to move up or down the menu page, then press the **OK** button to select the page you want to view.
- Once the page you want is displayed, you can use the arrow buttons to move around it, make changes if required and then move to the **Back to Main Menu** button and press **OK** to return to the menu.

6.4.2 Viewing and editing the settings

The following section gives a brief summary of how to use the Preferences pages to change configuration settings.

6.4.2.1 To view the configuration

1. Open the page for the configuration area you want to view. The current configuration settings are displayed.
2. To return to the menu page, move to the Preferences page and press **OK**.

6.4.2.2 To change the configuration settings

1. Open the page for the configuration area you want to view.
2. Use the arrow buttons to move to the setting you want to change. As you move around the page, the setting that you have currently selected is highlighted.
3. Make the changes you require:
 - To change a text field, use the **LAST CH/P<P** button to delete the current value, then type the new value.
 - To change a check box, press the **OK** button to check or uncheck the box.
 - To select values from a drop-down list, press the **OK** button to display the choices, use the up and down arrow buttons to move to the value want, then press **OK** again to select the new value.
4. When you are happy with your changes, move to the *Save Changes* button, and press **OK**. There will be a short delay while the changes are written to the set-top box's configuration (the set-top box's LED will flash during this time). Alternatively, you can use the *Reset* button to undo your changes to the page and return to the values set when you displayed the page.
5. If you saved your changes, a new page confirms the changes. If you did not make any changes, the page does not change. From both pages, you can return to the main menu by moving to the **Back to Main Menu** button and pressing **OK**.

6.4.2.3 Closing the Preferences pages

When you have finished, navigate to the main menu, then move to the **Exit preferences** option and press **OK**.

6.5 Preferences pages - configuration areas

The list of configuration areas and settings that you can read and edit from the Preferences pages depends on the details of the software build. The sections that follow detail the main settings available. Each section relates to a page accessible from the main menu. For general information on changing configuration via the Management pages, see "[Viewing and editing configuration](#)" on page 66.

6.5.1 Keyboard Settings

This page enables you to view and edit keyboard configuration.

Keyboard Settings

Keyboard

Repeat delay (1-4)

Repeat rate (0,2-30cs)

Remote control text entry ☒

[Save Changes](#) [Reset](#)

[Back to preferences page](#)

Figure 6.6 Fresco/Opera 8.5 Keyboard Settings Preferences page

The following settings are available:

Keyboard Repeat delay (1-4)

The length of time that a user holds a key down on an IR input device (for example, the IR keyboard) in order to make it repeat. See also [DELAY_FACTOR](#).

Value	Description
1	16cs delay rate.
2	32cs delay rate.
3	64cs delay rate.
4	96cs delay rate.

Repeat rate (0,2-30 cs) Controls the number of characters per second for IR input devices (for example, the IR keyboard). Set an even-number value in the range 2 - 30 (rate in centi-seconds), or set 0 for no repeat. See also [REPEAT_RATE](#).

Remote control text entry

Enables or disables remote text entry via the remote control. If text entry is enabled, the user enters text by holding down the appropriate number key. See also [TEXT_ENTRY](#).

Note: Repeat rate must be set to 0 (zero) and remote text entry must be enabled for remote text entry to work.

6.5.2 Audio Settings

This page enables you to view and edit audio set-up.

Preferences

Minimum Volume (0-100)

Maximum Volume (0-100)

Primary language

Secondary language

HDMI - PCM audio only* ☒

[Back to preferences page](#) * Requires Reboot

[Save Changes](#) [Reset](#)

Figure 6.7 Typical Fresco/Opera 8.5 Audio Preferences page

The following settings are available:

Minimum Volume (0-100)

Sets the minimum set-top box volume. This must be less than the maximum volume, and in the range 0 - 100 (percent). See also [MINIMUM_VOLUME](#).

Maximum Volume (0-100)

Sets the maximum set-top box volume. This must be greater than the minimum volume, and in the range 0 - 100 (percent). See also [MAXIMUM_VOLUME](#).

Primary language

Sets the primary language for an audio stream, for example, English. See also [PREFERRED_LANG](#).

Secondary language

Sets the secondary language for an audio stream. If the STB can find no audio stream in the Primary language, it selects an audio stream in the chosen secondary language, for example, Spanish. See also [SECONDARY_LANG](#).

HDMI-PCM audio only

When Dolby Digital audio is being decoded, the decoded 2-channel PCM data is embedded in the HDMI signal, rather than the Dolby Digital data. See also [HDMI_AUDIO_FORMAT](#).

6.5.3 Video Settings

This page enables you to view and edit TV and video set-up.

Figure 6.8 Fresco/Opera 8.5 Video Settings Preferences page

The following settings are available:

Output Resolution Selects the output resolution, which should be one of the following options:

Standard Definition (not available on the A130M)
 576p
 720p
 1080i

See also [OUTPUT_RESOLUTION](#).

Native Pass-Through Enable

If this is selected native standard definition is displayed as native standard definition on a high definition display. See [NATIVE_PASSTHRU_ENABLE](#).

TV aspect ratio Sets how video is formatted for the TV. See also [DISPLAY_MODE](#).

Note: The box must be re-booted in order for the changes to take effect.

The following options are available:

Value	Description
Standard 4:3 (centre cut-out)	For televisions with no automatic aspect ratio switching, where the video image is required to fill the full 4:3 screen. In this mode, 4:3 content fits the screen correctly, and any 16:9 video content is cropped on the left and right sides.
Standard 4:3 (letterbox)	For televisions with no automatic aspect ratio switching, where the full 16:9 screen is required. In this mode, 4:3 content fits the screen correctly, and any 16:9 content is displayed in full, with black bars above and below.

Value	Description
Widescreen 16:9	For televisions with automatic ratio switching. In this mode, the television switches between 4:3 and 16:9 depending on the video content, and full content is displayed for both.

Video output format Sets the output format of the set-top box. See also [TVSYSTEM](#).

The following table shows which video output format choices the Management and Preferences pages offer for each of the types of set-top box (on the **Video Setup** page of the Management pages, and on the TV system and audio settings page of the Preferences pages):

Set-top box type	Output format choices offered
AmiNET103	COMPOSITE
AmiNET110 AmiNET110H	COMPOSITE S-VIDEO COMPOSITE + RGB COMPOSITE + S-VIDEO COMPOSITE + YPbPr RF
AmiNET125	COMPOSITE COMPOSITE + RGB COMPOSITE + S-VIDEO COMPOSITE + YPbPr RF
AmiNET130 AmiNET130H	HDMI(SD) + COMPOSITE + RGB HDMI(SD) + COMPOSITE + S-VIDEO HDMI(SD) + COMPOSITE + YPbPr RF (130 only)
AmiNET130M	HDMI (SD)
AmiNET500	COMPOSITE + S-VIDEO + YPbPr COMPOSITE + S-VIDEO + RGB
AmiNET 530 (EU)	HDMI(SD) + COMPOSITE + RGB HDMI(SD) + COMPOSITE + S-VIDEO RF
AmiNET 530 (US)	HDMI(SD) + COMPOSITE + S-VIDEO HDMI(SD) + COMPOSITE + YPbPr RF

Invalid video mode recovery

For further information on this please refer to [Appendix H, "Invalid video mode recovery"](#).

Frequency table Sets the RF output frequency table (for platforms with RF output). The options are as follows:

Value	Description
BROADCAST	broadcast
CABLE	cable

See also [RFMOD_FREQTABLE](#).

RF Channel

Sets the RF channel (for platforms with RF output). See also [RFMOD_CHAN](#).

Use RF Output

Enables or disables the RF output (for platforms with RF output). See also [RFMOD_ENABLE](#).

6.5.4 Subtitles

This page enables you to view and edit subtitle configuration (only available on builds with DVB-subtitling support).

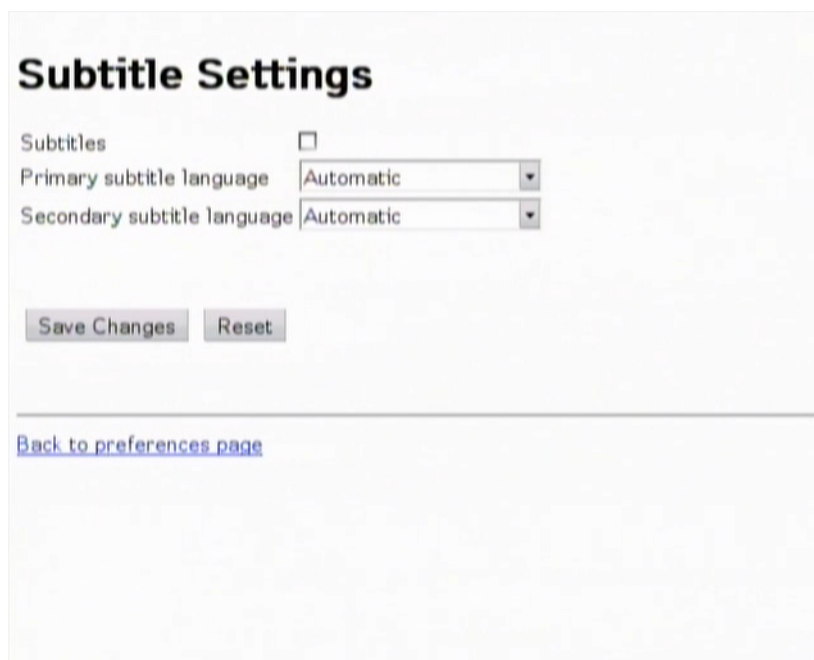


Figure 6.9 Fresco/Opera 8.5 Subtitle Settings Preferences page

The following settings are available:

Subtitles

The checkbox enables or disables subtitle display. See also [SUBTITLES](#).

Primary subtitle language

Sets the primary language for the default subtitle display. For example, English. See also [SUBTITLES_PREF_LANG](#).

Secondary subtitle language

Sets the secondary language for the default subtitle display. If the set top box can find no subtitle information in the Primary language it uses the information in the Secondary subtitle language, for example, Spanish. See also [SUBTITLES_SECOND_LANG](#).

6.5.5 Closed captions

This page enables you to view and edit the closed caption configuration.

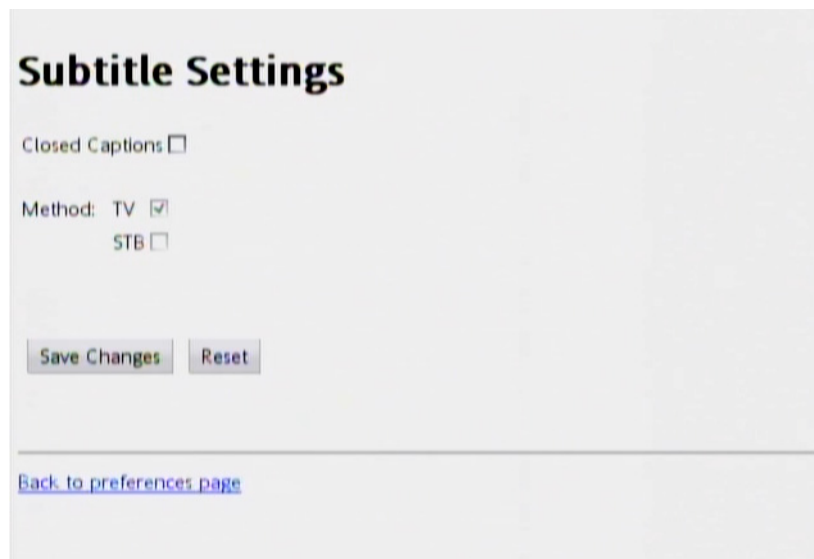


Figure 6.10 Fresco/Opera 8.5 Subtitle Settings Preferences page

The following settings are available:

- Closed Captions** The checkbox enables or disables closed caption display. See also [CC_OUTPUT_SOFTCC](#).
- Method** Select **TV** to enable insertion of captions in the VBI of Standard definition analogue outputs. See also [CC_OUTPUT_VBI](#) and [CC_OUTPUT_SOFTCC](#).
- Select **STB** to enable software rendering of captions by the set-top box.

6.5.6 PVR Preferences page

For AmiNET models with a PVR, this page enables you to reinitialise the hard drive.

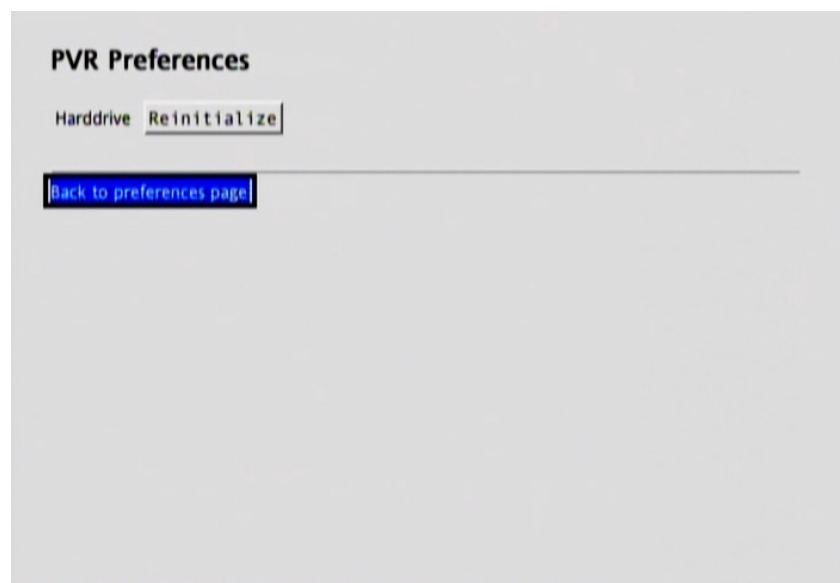


Figure 6.11 Fresco/Opera 8.5 PVR Settings Preferences page

The following settings are available:

Harddrive

The single **Reinitialize** option will completely reformat the hard drive of the PVR. All data will be deleted. The following warning will be displayed:

This operation will reinitialize the hard drive and all content will be lost. Proceeding with this operation will reboot the STB and any current operations will be terminated.

Are you sure you want to continue?

6.6 Management pages

The set-top box Management pages are a simple interface that enables administrators to change set-top box configuration areas such as networking, channel list and browser set-up, as well as initiate basic operations such as rebooting and updating software. In addition, read-only access is available to areas such as version and set-top box identity settings. The pages are password-protected and accessed locally via an Amino IR keyboard (limited functionality is also supported via the remote control).

Use **Alt-M** on the keyboard to access the Management pages. You will be required to enter the management password. Management pages allow access to advanced configuration functions and are designed for use by administrators rather than end-users.

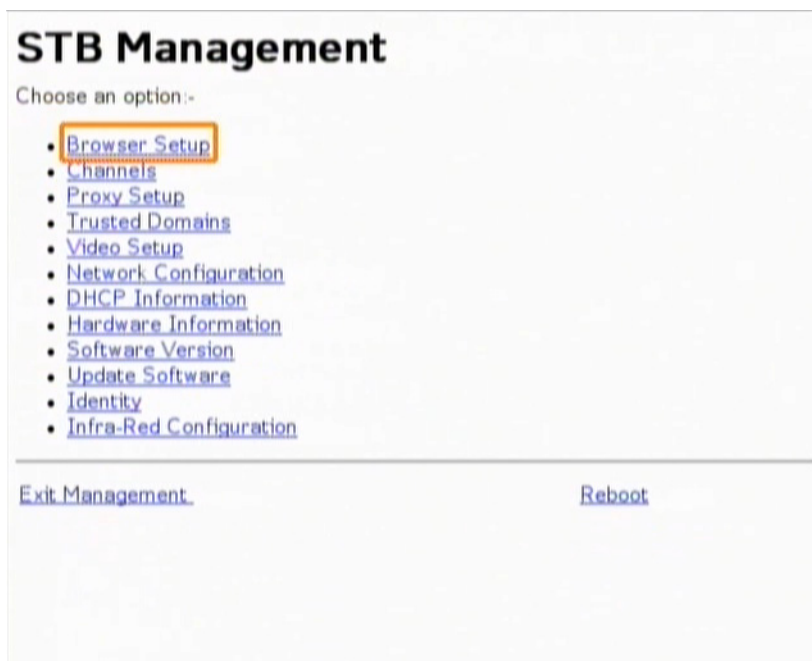


Figure 6.12 Fresco/Opera 8.5 Management page

When you first access the pages, a menu that lists the available areas is displayed. The settings available depend on the software build, but the menu can include the following items:

Area	Allows you to:
Browser Setup	View and edit browser configuration and change keyboard layout.
Channels	View and edit the channel URLs.
Proxy Setup	View and edit HTTP and HTTPS proxies.
Trusted Domains	View and edit settings for trusted domains.
Video Setup	View and edit video display and timeout settings.

Area	Allows you to:
Network Configuration	View and edit static address information.
DCHP Information	View and edit DHCP settings.
Hardware Information	View set-top box hardware details.
Software Version	View set-top box software version.
Update Software	Initiate a software upgrade (multicast) or reflash.
Identity	View set-top box identity information.
Infra-Red Configuration	Pair the set-top box with an IR remote control. See Appendix I, "Pairing an IR remote control with a set-top box" for further details.
TVI Configuration	Only present on Hospitality (H) set-top boxes. Sets the protocol to use for controlling the television.
Reboot	Reboot the set-top box.

6.6.1 Navigation - using the keyboard

Once the Management pages are displayed, you can use either the keyboard or remote control to navigate around the pages and change settings. However, the Management pages require the use of a keyboard to display them and enter text, so the usage instructions here all specify what keys to press on the keyboard. It is also possible to use equivalent remote control options in many cases.

- Use the arrow keys to move up or down the menu page, then press the **Enter** key to select the page you want to view.
- Once the page you want is displayed, you can use the arrow keys to move around it, make changes if required and then move to the **Back to Main Menu** button and press **Enter** to return to the menu.

6.6.2 Closing the Management pages

When you have finished, select **Exit Management** to close the Management pages and return to the main television display.

6.6.3 Viewing and editing configuration

The following section describes how to view or edit the configuration using the Management pages.

6.6.3.1 Viewing

1. Open the page for the configuration area you want to view. The current configuration settings are displayed.
2. To return to the menu page, move to the **Back to Main Menu** button (usually at the bottom of the page) and press **Enter**.

6.6.3.2 Editing

Note that not all configuration settings can be changed. If a page does not have a **Save Changes** button, then the settings are all read-only.

1. Open the page for the configuration area you want to view.

2. Use the arrow keys to move to the setting you want to change. As you move around the page, the current setting that you have currently selected is highlighted.
3. Make the changes you require:
 - To change a text field, use the **Back Space** key to delete the current value, then type the new value.
 - To change a check box, press the **Enter** key to check or uncheck the box.
 - To select values from a drop-down list, press the **Enter** key to display the choices, use the up and down arrow keys to move to the value want, then press **Enter** again to select the new value.
4. When you are happy with your changes, move to the **Password** field and type the password. If you have not changed the default password, this is `snake`. Next, move to the **Save Changes** button, and press **Enter**. There will be a short delay while the changes are written to the set-top box's configuration (the set-top box's LED will flash during this time). Alternatively, you can use the **Reset** button to undo your changes to the page and return to the values set when you displayed the page.
5. If you saved your changes, a new page confirms the changes. If you did not make any changes, the page does not change. From both pages, you can return to the main menu by navigating to the **Back to Main Menu** button and pressing **Enter**.

For many configuration settings, you will now need to reboot the set-top box for the changes to take effect.

6.6.4 Rebooting the set-top box via the management pages

1. On the main menu, move to the **Reboot** option, then press the **Enter** button.
2. The set-top box reboots immediately.

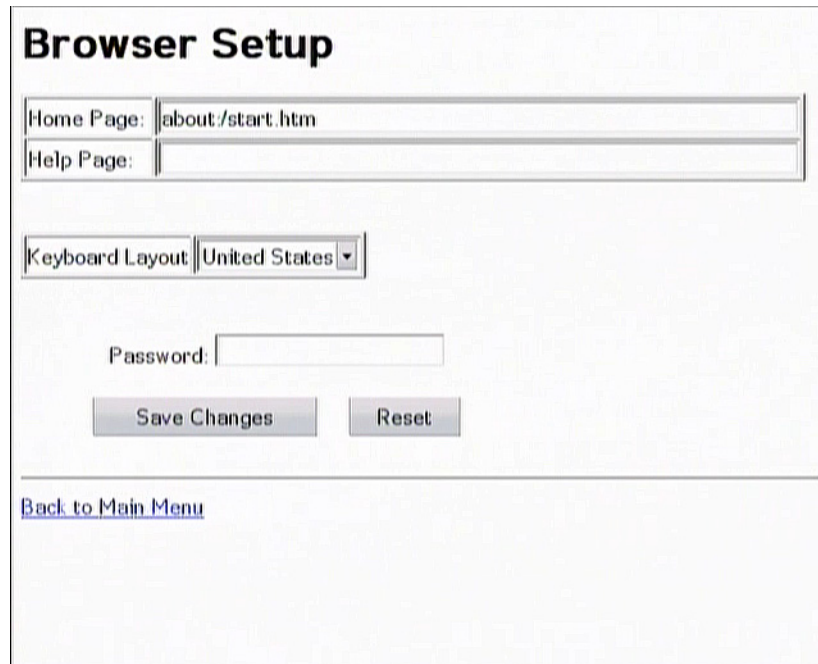
6.7 Management pages – configuration areas

The list of configuration areas and settings that you can read and edit from the Management pages depends on the details of the software build. The sections that follow describe the main settings available. Each section relates to a page accessible from the main menu. For general information on changing configuration via the Management pages, see "[Viewing and editing the settings](#)" on page 58. For information on the areas that are not related to configuration, see "[Rebooting the set-top box via the management pages](#)" on page 67 and "[Update software](#)" on page 81.

Note: The page view will differ depending on the standard browser in use, as below

6.7.1 Browser Setup

This page enables you to view and edit browser configuration.:



The screenshot shows a web interface titled "Browser Setup". It contains the following elements:

- A "Home Page:" label followed by a text input field containing "about:/start.htm".
- A "Help Page:" label followed by an empty text input field.
- A "Keyboard Layout:" label followed by a dropdown menu currently showing "United States".
- A "Password:" label followed by an empty text input field.
- Two buttons: "Save Changes" and "Reset".
- A link at the bottom: "[Back to Main Menu](#)".

Figure 6.13 Fresco/Opera 8.5 Browser Setup for the Opera Browser

Browser Setup

Home Page:

Help Page:

☐ Use Proxy ☒ Accept Cookies

Disk Cache (KBytes):

Ram Cache (Kbytes):

Keyboard Layout:

Password:

[Back to Main Menu](#)

Figure 6.14 Fresco/Opera 8.5 Browser Setup for the Fresco Browser

The following settings are available:

- Home page** Sets the home page. This is the URL for the page that the browser goes to when the Home key is pressed and when the set-top box has booted successfully. The URL entered must be in the format `http://<address>`. See also [BROWSER_HOMEPAGE](#).
- Help page** Sets the help page. This is the URL for the page that the browser goes to when the Help key is pressed. The URL entered must be in the format `http://<address>`. See also [BROWSER_HELPPAGE](#).
- Use Proxy** Enables or disables the use of HTTP, HTTPS and FTP proxy servers. See also [USE_PROXY](#).
- Accept Cookies** Enables or disables cookies. Enable this to allow cookies to be accepted (note that cookies can only be accepted where this is supported by the browser). See also [BROWSER_ENABLECOOKIES](#).
- Disk cache (Kbytes):** Sets the amount of cached web content data that can be held on the hard disk.
- RAM Cache (Kbytes):** Sets the amount of cached web content data that can be held in memory.
- Keyboard Layout** Sets the layout for the IR keyboard. See also [KEYMAP](#).

6.7.2 Channel

This page enables you to view and edit the channels list.

Select range of channel numbers to edit

From: To:

[Edit channel range](#)

Or, choose from a preset range

- [0 to 99](#)
- [100 to 199](#)
- [200 to 299](#)
- [300 to 399](#)
- [400 to 499](#)
- [500 to 599](#)
- [600 to 699](#)
- [700 to 799](#)
- [800 to 899](#)
- [900 to 999](#)

[Back to Main Menu](#)

Figure 6.15 Fresco/Opera 8.5 Channel setup Management page

The following settings are available

Channels 0-999 You can set up to 1000 channels, with the numbers 0 - 999. Click on a range to view/edit the channels with those numbers. For each channel, you will need to enter a URL in the format appropriate for the video server.

6.7.3 Proxy Setup

The **Proxy Setup** page enables you to view and edit configuration of HTTP, HTTPS and FTP proxies

Proxy Setup

HTTP Proxy (host:port)	
Secure Proxy (host:port)	
FTP Proxy (host:port)	
Don't use proxy for the following:	

Password:

[Back to Main Menu](#)

Figure 6.16 Fresco/Opera 8.5 Proxy setup Management page

The following settings are available:

HTTP Proxy

The IP address and port for the proxy server for HTTP transactions. Enter these in the format <host>:<port>.

For example: 234.56.78.9:1234

See also [HTTP_PROXY](#).

Secure Proxy

The IP address and port for the proxy server for HTTPS transactions. Enter these in the format <host>:<port>.

For example: 234.56.78.9:1234

See also [HTTPS_PROXY](#).

FTP Proxy

The IP address and port for the proxy FTP server. Enter these in the format <host>:<port>.

For example: 234.56.78.9:1234

Don't use proxy for the following:

List of URLs for sites that proxy should not be used for. Separate URLs with a comma. See also [HTTP_PROXY_IGNORE](#).

6.7.4 Trusted Domains

The **Trusted Domains** page enables you to view or edit settings for trusted domains.

Trusted Domains

☐ Enable Trusted Domains

Trusted Domain	Macrovision	JavaScript
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐

Password:

[Back to Main Menu](#)

Figure 6.17 Fresco/Opera 8.5 Trusted Domains Management page

The following settings are available:

Enable Trusted Domains

Enable or disable use of trusted domains. If the use of trusted domains is enabled, pages that use JMACX extensions or Macrovision are checked against the list of trusted hosts. If trusted domains is disabled, JMACX and Macrovision calls can be executed from any web page. You can specify multiple trusted domains, for each trusted domain, you will need to set a value for the domain and indicate whether JMACX and/or Macrovision control is allowed for that domain. See also [ENABLE_TRUSTED_DOMAINS](#).

Trusted Domains

Set the URL for a trusted domain. This can use an asterisk as a wildcard.

Macrovision

Enables or disables execution of Macrovision calls for the trusted domain defined by the associated URL.

JavaScript

Enables or disables execution of JavaScript calls for the trusted domain defined by the associated URL.

Important: The rules specified in the `trsdms.txt` file are applied in the order they are stated, so you need to take care when adding domains to ensure that the rules are applied as intended.

For example, in the following file, 3 specifies that Macrovision and JMACX are enabled for the `macrovision.aminocom.com` domains, and 2 specifies that only JMACX is enabled for any other `aminocom.com` domain:

```
3 macrovision.aminocom.com
2 *.aminocom.com
```

In the following alternative example – with the same settings re-ordered – only JMACX is enabled for any aminocom.com domain, and so Macrovision is not enabled for macrovision and aminocom.com, even though 3 would normally enable Macrovision– since Macrovision for this domain has already been ruled out in the previous line:

```
2 *.aminocom.com
3 macrovision.aminocom.com
```

6.7.5 Video Setup

The **Video Setup** page enables you to view and edit video display and timeout settings.

Video Setup	
Default Video Server	nCube
TV Standard Requires reboot	PAL-G (Europe)
Video Trick-play Scale	6
No RTSP event timeout	4
RTSP End of media event timeout	6
No IGMP event timeout	30
IGMP End of media event timeout	30
No UDP event timeout	8
UDP End of media event timeout	8
Full screen mode	☐
Left Margin	0
Right Margin	0
Top Margin	0
Bottom Margin	0

Password:

[Back to Main Menu](#)

Figure 6.18 Fresco/Opera 8.5 Video Setup Management page

The following settings are available:

Default Video Server Sets the default video server type. The available options are:

- BitBand
- Concurrent
- EONA
- InfoValue
- Kasenna MediaBase
- nCube
- Oracle
- SeaChange

See also [RTSP_SERVER](#).

TV Standard Sets the TV standard. See also [TVSYSTEM](#). Depending on the set-top box type, the available options are as follows:

Value	Example region
PAL-I	UK
PAL-M	Brazil
PAL-N	Argentina
PAL-G	Europe
PAL-B	Australia, Ghana
PAL-H	Belgium
PAL-D	China (Note that this is not supported on the AmiNET103 or AmiNET109 platforms.)
NTSC-J	Japan
NTSC-M	USA

A complete list of the Worldwide TV Standards can be found in the *Amino TV Standards Guide*.

Video Trick-play Scale The default fast forward and rewind multiplier. See also [RTSP_SCALE](#).

No RTSP event timeout Number of seconds to wait for RTSP data after sending an RTSP play command, before a no-video event is raised. This must be in the range 0 - 30, where 0 means that there will never be a timeout raised. See also [RTSP_START_TIMEOUT](#).

RTSP End of media event timeout Number of seconds to wait when no more RTSP data is seen, before an end-of-media event is raised. This must be in the range 0 - 30, where 0 means that there will never be a timeout raised. See also [RTSP_END_TIMEOUT](#).

No IGMP event timeout Number of seconds to wait for video data to arrive after an IGMP join command, before a no-video event is raised. This must be in the range 0 - 30, where 0 means that there will never be a timeout raised. See also [IGMP_START_TIMEOUT](#).

IGMP End of media event timeout Number of seconds to wait when no more IGMP data is seen, before an end-of-media event is raised. This must be in the range 0 - 30, where 0 means that there will never be a timeout raised. See also [IGMP_START_TIMEOUT](#).

No UDP event timeout Number of seconds to wait after trying to connect to a UDP media stream, before a no-video event is raised. This must be in the range 0 - 30, where 0 means that there will never be a timeout raised. See also [UDP_START_TIMEOUT](#).

UDP End of media event timeout Number of seconds to wait when no more UDP data is seen, before an end-of-media event is raised. This must be in the range 0 - 30, where 0 means that there will never be a timeout raised. See also [UDP_END_TIMEOUT](#).

Full screen mode Enables or disables full screen mode. See also [FULLSCREEN](#).

Left Margin Sets the left browser margin, as a percentage of the graphics plane size (that is, in the range 0 - 100). Opera also allow margins to be specified in pixels. See also [BROWSER_MARGIN_LEFT](#).

- Right Margin** Sets the right browser margin, as a percentage of the graphics plane size (that is, in the range 0 - 100). Opera also allow margins to be specified in pixels. See also [BROWSER_MARGIN_RIGHT](#).
- Top Margin** Sets the top browser margin, as a percentage of the graphics plane size (that is, in the range 0 - 100). Opera also allow margins to be specified in pixels. See also [BROWSER_MARGIN_TOP](#).
- Bottom Margin** Sets the bottom browser margin, as a percentage of the graphics plane size (that is, in the range 0 - 100). Opera also allow margins to be specified in pixels. See also [BROWSER_MARGIN_BOTTOM](#).

6.7.6 Network Configuration

The **Network Configuration** page enables you to modify the network configuration settings.

Network Configuration	
Ethernet Link	Auto detect (default) ▾
DHCP Info	Use DHCP ▾
Hostname:	
IP Address:	0.0.0.0
Netmask:	0.0.0.0
Gateway:	0.0.0.0
Domain:	
DNS:	0.0.0.0
Time Server:	0.0.0.0
NTP Client Timeout:	
Time Zone:	
Multicast Bootstrap Address:	0.0.0.0
Multicast Bootstrap Port:	0
Multicast Filesystem Address:	0.0.0.0
Multicast Filesystem Port:	0
TFTP Server:	0.0.0.0
TFTP Load File:	
Packet Ordering	☐
Password:	
Save Changes Reset	
Back to Main Menu	

Figure 6.19 Fresco/Opera 8.5 Network Configuration Management page

The following settings are available:

Ethernet Link	Sets the default speed for the main ethernet port to one of the following values: - Auto detect (this is the default) 10Mbit/s Half Duplex 10Mbit/s Full Duplex 100Mbit/s Half Duplex 100Mbit/s Full Duplex See also ETHERNET.
DHCP Info	A link exists from this configuration setting to the DHCP Information page displaying details of the current DHCP information received. The DHCP window displays values for the following: - IP address - Netmask - Gateway - Domain - DNS - Lease Time - Renewal Time - Rebind Time The drop-down list sets how the set-top box uses configuration information from a DHCP server. If the set-top box will not be getting all its network settings dynamically from the DHCP server (Do not use DHCP), then you will need to ensure that the appropriate static settings are specified on this page (for example, IP address and netmask). See also DHCP.
Hostname	Sets the hostname for the set-top box.
IP Address	Sets the static IP address for the set-top box. This is only needed if the set-top box does not retrieve its network settings from a DHCP server. See also IPADDR .
Netmask	Sets the netmask. This is only needed if the set-top box does not retrieve its network settings from a DHCP server. See also NETMASK .
Gateway	Sets the IP address for the gateway for the set-top box. This is only needed if the set-top box does not retrieve its network settings from a DHCP server. See also GATEWAY .
Domain	Sets the domain for the set-top box. This is only needed if the set-top box does not retrieve its network settings from a DHCP server. See also DOMAIN .
DNS	Sets the IP addresses for the domain name servers for the set-top box. This is only needed if the set-top box does not retrieve its network settings from a DHCP server. See also DNS .
Lease time	The DHCP lease time as returned by the DHCP server. See also LEASETIME .
Renewal time	The DHCP renewal time as returned by the DHCP server. See also RENEWAL-TIME .
Rebind time	The DHCP rebind time as returned by the DHCP server. See also REBIND-TIME .

Time Server Sets the IP address for the NTP server that the set-top box connects to. This is only needed if the set-top box does not retrieve its time settings from a DHCP server. See also [TIME_SERVER](#).

NTP Client Timeout Sets the NTP client timeout in seconds. See also [NTPCLIENT_TIMEOUT](#).

Time Zone Sets the time zone for the set-top box (Posix time-zone formats). A list of the values for this can be found in the Amino *Installation and Upgrade Guide*. This is only needed if the set-top box does not retrieve its network settings from a DHCP server. See also [TIME_ZONE](#).

Multicast Bootstrap Address

Sets an IP address for connecting to the multicast server in `mboot` (multicast bootstrap) state.

This is used in the following situations:

- As a fall-back bootstrap group when the group and port specified by the DHCP server cannot be found.
- For deployments where booting information is not held on a DHCP server.

Note: The set-top box will always try to use a value served from a DHCP server in preference to this statically defined value.

You will also need to specify a multicast bootstrap port. See also [MULTICAST_BOOTSTRAP_GROUP](#).

Multicast Bootstrap Port

Sets a port for connecting to the multicast server in `mboot` (multicast bootstrap) state.

This is used in the following situations:

- As a fall-back bootstrap group when the group and port specified by the DHCP server cannot be found.
- For deployments where booting information is not held on a DHCP server.

Note: The set-top box will always try to use a value served from a DHCP server in preference to this statically defined value.

You will also need to specify a multicast bootstrap address. See also [MULTICAST_BOOTSTRAP_PORT](#).

Multicast Filesystem Address

Sets an IP address for connecting to the multicast server in `fisys` (multicast filesystem) state.

This is used in the following situation:

- For deployments where booting information is not held on a DHCP server.

Note: The set-top box will always try to use a value served from a DHCP server in preference to this statically defined value.

You will also need to specify a multicast File system port. See also [MULTICAST_ FILESYSTEM_ GROUP](#).

Multicast Filesystem Port

Sets an IP address for connecting to the multicast server in `fisys` (multicast filesystem) state.

This is used in the following situation:

- For deployments where booting information is not held on a DHCP server.

Note: The set-top box will always try to use a value served from a DHCP server in preference to this statically defined value.

You will also need to specify a multicast File system port. See also [MULTICAST_ FILESYSTEM_ PORT](#).

TFTP Server

Sets the static IP address to use for TFTP software upgrades. This is not needed for set-top boxes that use the multicast upgrade system or use a BOOTP request for TFTP software upgrades. See also [TFTP_ SERVER](#).

TFTP Load File

Sets the static name of the download script to use in TFTP upgrades. This allows for a static download script to be request for downloading images from a TFTP server. The set-top box will try to use this value first, before making a DHCP request to try to obtain this information from a DHCP server. The script name must have no more than 14 characters.

This is not needed for set-top boxes that use the multicast upgrade system. See also [TFTP_ LOADFILE](#).

Packet Ordering

Enables or disables packet ordering. If packet ordering is enabled, the set-top box buffers out of order packets. See also [PACKET_ ORDERING](#).

PPP Username

Sets the user name to use (PPPoE builds only). This must be a string with a maximum of 64 characters. See also [PPP_ USERNAME](#).

Note: Builds with PPP enabled only.

PPP Password

Sets the password to use (PPPoE builds only). This must be a string with a maximum of 32 characters (except on a 103 board, where the maximum is 10 characters). See also [PPP_ PASSWORD](#).

Note: Builds with PPP enabled only.

6.7.7 DHCP Information

You can also reach this page from the **DCHP Configuration** option of the [Network Configuration](#) page.

Settings similar to the following are displayed. These values cannot be changed.

Current DHCP Configuration	
IP Address:	10.172.244.7
Netmask:	255.255.0.0
Gateway:	10.172.0.1
Domain:	aminocom.com
DNS:	10.172.3.12
Lease Time:	86400
Renewal Time:	43200
Rebind Time:	75600
Back to Network Configuration Back to Main Menu	

Figure 6.20 Fresco/Opera 8.5 DHCP Configuration Management page

6.7.8 Hardware Information

This page enables you to view details of the set-top box hardware.

Hardware Information	
Product	aminet110
Processor	IBMSTBx25xxx
SDRAM	64 Mb
Flash	16 Mb
Processor Speed:	252Mhz
ROM Type:	OTP
Board Revision:	1

[Back to Main Menu](#)

Figure 6.21 Fresco/Opera 8.5 Hardware Information Management page

The following settings are available:

Product	The AmiNET set-top box type.
Processor	The processor type.
SDRAM	The size of the SD RAM.
Flash	The size of the flash.
Processor Speed	The processor speed.
ROM Type	The type of Read Only memory.
Board Revision	The board revision number.

6.7.9 Software version

The Software version **JavaScript Alert** window enables you to view the version string for the software build.

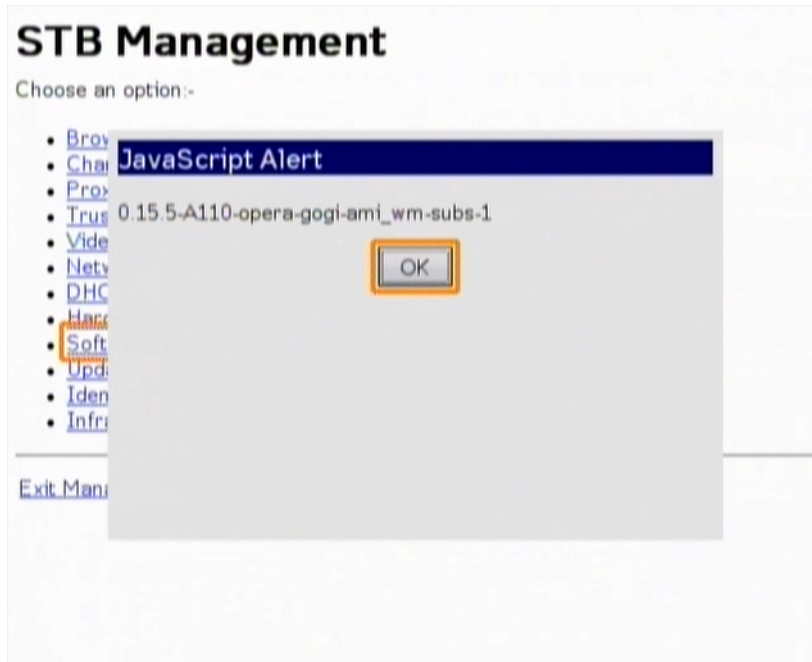


Figure 6.22 Fresco/Opera 8.5 STB Management page

6.7.10 Update software

The **Update Software** window enables you to initiate a software upgrade.

 The screenshot shows the 'Update Software' web page. At the top is the title 'Update Software'. Below it is a warning message: 'WARNING! Choosing this option will delete all files in the system. You should only do this if you are able to download new software to the box.' Underneath the warning, it says 'Leave Address and Port blank to do a reflash instead of an upgrade.' There are three input fields labeled 'Address:', 'Port:', and 'Password:'. Below these fields is a button labeled 'CLICK HERE' followed by the text 'to begin the software update process.' At the bottom of the page is a link that says 'Back to Main Menu'.

Figure 6.23 Fresco/Opera8.5 Update Software Management page

6.7.10.1 To initiate a software upgrade via the management pages

Before you initiate a software upgrade, you will need to ensure that new software is available. In most cases, this means that the multicast system must be set up, with the multicast server transmitting appropriate new software images.

1. On the main menu, move to the **Update Software** option, then press the **Enter** button. The **Update Software** page is displayed.
2. You can either upgrade just the main software image or you can reflash the set-top box (that is, delete the contents of the NAND flash and reload both a new bootstrap and a new software upgrade image). When the set-top box performs a software upgrade, it tests the new software and can revert to the old software if there is a problem. When the box reflashes, it wipes its current software before installing new software so it may not be able to revert to the old software if there is a problem.

6.7.10.2 To upgrade the main set-top box image

- In the **Address** field, enter the IP address for the multicast image (this is the IP address specified in the multicast server configuration).
- In the **Port** field, enter the port for accessing the multicast image (again, as specified in the multicast server configuration).
- In the **Password** field, enter the password. If you have not changed the default, this is `snake`.
- Move to the **CLICK HERE** button and press **Enter** to start the upgrade.

6.7.10.3 To reflash the set-top box

- Leave the **Address** and **Port** fields blank.
- In the **Password** field, enter the password. If you have not changed the default, this is `snake`.

Warning:

Amino strongly recommends that you change the default passwords when deploying our set-top boxes. See Section 4.4 of the Amino *Installation and Upgrade Guide* for information on changing these default passwords.

3. Move to the **CLICK HERE** button and press **Enter** to start the upgrade or reflash.

6.7.11 Identity

The **Identity** window enables you to view set-top box identity information.

Identity

Do not make changes here if you don't know what you're doing.

MAC Address:	00:02:02:ff:e5:c7
Serial Number:	101006D420322

Password:

[Back to Main Menu](#)

Figure 6.24 Fresco/Opera 8.5 Identity Management page

The following settings are available:

MAC Address The set-top box MAC address. **This value is locked during manufacture.**

If you have a development set-top box on which the MAC address is still editable, you must not change it unless you are fully aware of the effects. See also [MAC_ADDRESS](#).

Serial Number The set-top box serial number. **This value is locked during manufacture.**

If you have a development set-top box on which the serial number is still editable, you must not change it unless you are fully aware of the effects. See also [SERIAL_ID](#).

6.7.12 Infra-Red Configuration

The **IR Configuration** page enables you to pair the set-top box with a remote control.

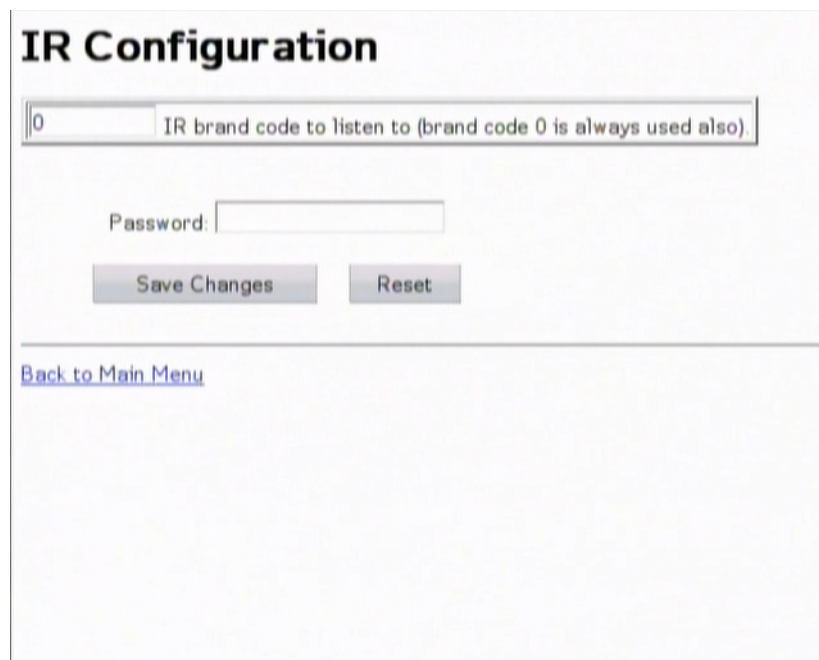


Figure 6.25 Fresco/Opera8.5 IR Configuration Management page

The following setting is available:

IR brand code to listen to

Sets the brand code used to pair the set-top box with a particular Amino remote control. The value must be in the range 000 - 015 (and 100 –115 for the AmiNET 125 and 130), and must match the code on the remote control that you want to use to with this set-top box. See also [IR_BRAND](#).

See also [Appendix I, "Pairing an IR remote control with a set-top box"](#) for additional information on the Infra-red remote control.

6.7.13 TVI Configuration

The **TVI Configuration** page enables you to set the protocol for the set-top box to use for controlling the television.

Note: This option is only available on Hospitality platforms.

Figure 6.26 Fresco/Opera 8.5 TVI Configuration Management page

The following settings are available:

TVI protocol Sets the protocol to use for controlling the television. The supported options are:

Uninitialised
Philips
Zenith
LG
Panasonic/Sony

Panasonic/Sony and Zenith options are available for older models of television. See also [TVI_TYPE](#).

6.8 Configuration page settings for Fresco and Opera 8.5

The main settings needed to configure the set-top box can be accessed via the Configuration pages. Which configuration area these settings are read from (that is, configuration file or NOR Flash) depends on the software build. The following table shows which area the Configuration pages read and write settings to for the Fresco and Opera browsers (the setting is specified with the file name (or “NOR Flash”) on the first line and the setting name on the next line).

You may need this information if you want to trial settings via the Configuration pages and then copy the new configuration to the image components used to create a new software image.

6.8.1 Preferences pages

Area	Fresco	Opera
Keyboard settings page		
Repeat delay	settings DELAY_FACTOR	settings DELAY_FACTOR
Repeat rate	settings REPEAT_RATE	settings REPEAT_RATE
Enable remote text entry	settings TEXT_ENTRY	settings TEXT_ENTRY
TV system and audio settings page		
Audio settings page		
Minimum Volume	settings MINIMUM_VOLUME	settings MINIMUM_VOLUME
Maximum Volume	settings MAXIMUM_VOLUME	settings MAXIMUM_VOLUME
Primary language	settings PREFERRED_LANG (or usersettings file if the file exists)	usersettings PREFERRED_LANG / (in settings file instead in some builds)
Secondary language	settings SECONDARY_LANG (or usersettings file if the file exists)	usersettings SECOND_LANG / (in settings file instead in some builds)
Video settings page		
TV aspect ratio	settings DISPLAY_MODE	settings DISPLAY_MODE
Video output format	NOR Flash TVSYSTEM	NOR Flash TVSYSTEM
Frequency table	NOR Flash RFMOD_FREQTABLE	NOR Flash RFMOD_FREQTABLE
RF Channel / Use RF out- put	NOR Flash RFMOD_CHAN	NOR Flash RFMOD_CHAN
Subtitles page		
If set to NTSC output, you will see the captions page instead.		
Enable (check box)	NOR Flash SUBTITLES	NOR Flash SUBTITLES
Subtitle selection	settings SUBTITLES_OPTION	settings SUBTITLES_OPTION
Primary subtitle language	settings SUBTITLES_PREF_LANG (or usersettings file if the file exists)	settings SUBTITLES_PREF_LANG
Secondary subtitle lan- guage	settings SUBTITLES_SECOND_LANG (or usersettings file if the file exists)	settings SUBTITLES_SECOND_LANG

Area	Fresco	Opera
Closed captions page		
Closed captions (check box)	Settings CC_OUTPUT_SOFTCC	Settings CC_OUTPUT_SOFTCC
Method (check box)	Settings CC_OUTPUT_SOFTCC if TV is checked. CC_OUTPUT_SOFTCC if STB is checked.	Settings CC_OUTPUT_VBI if TV is checked. CC_OUTPUT_SOFTCC if STB is checked.

6.8.2 Management pages

Area	Fresco	Opera
Browser Setup page		
Home page	config.txt larch.document.default	settings BROWSER_HOMEPAGE
Help page	settings BROWSER_HELPPAGE	settings BROWSER_HELPPAGE
Use proxy	config.txt access.proxy.http.on	settings USE_PROXY
Accept Cookies	config.txt access.cookie.enable	settings BROWSER_ENABLECOOKIES
Disk Cache	config.txt access.cache.size	not used
RAM Cache	config.txt access.ramcache.size	not used
Channels page		
0-999	chnls.txt	chnls.txt
Proxy Setup page		
HTTP proxy host / port	config.txt access.proxy.http	settings HTTP_PROXY
Secure proxy host / port	config.txt access.proxy.https	settings HTTPS_PROXY
FTP proxy host / port	config.txt access.proxy.ftp	not used
Don't use proxy for the following:	config.txt access.proxy.http.ignore	settings HTTP_PROXY_IGNORE
Trusted Domains page		
Enable trusted domains	config.txt amino.trusted.domains	settings ENABLE_TRUSTED_DOMAINS
Domain n URL	trsdmsn.txt (URL on line n)	trsdmsn.txt (URL on line n)
Domain n Macrovision	trsdmsn.txt (Macrovision enabled if value on line n is 1 or 3)	trsdmsn.txt (Macrovision enabled if value on line n is 1 or 3)
Domain n JavaScript	trsdmsn.txt (JavaScript enabled if value on line n is 2 or 3)	trsdmsn.txt (JavaScript enabled if value on line n is 2 or 3)
Video Setup page		
Default Video Server	settings RTSP_SERVER	settings RTSP_SERVER
TV Standard	NOR Flash TVSYSTEM	NOR Flash TVSYSTEM
Output Format	NOR Flash OUTFMT	NOR Flash OUTFMT

Area	Fresco	Opera
Video Trick-play Scale	settings RTSP_SCALE	settings RTSP_SCALE
No RTSP event timeout	settings RTSP_START_TIMEOUT	settings RTSP_START_TIMEOUT
RTSP End of media event timeout	settings RTSP_END_TIMEOUT	settings RTSP_END_TIMEOUT
No IGMP event timeout	settings IGMP_START_TIMEOUT	settings IGMP_START_TIMEOUT
IGMP End of media event timeout	settings IGMP_START_TIMEOUT	settings IGMP_START_TIMEOUT
No UDP event timeout	settings UDP_START_TIMEOUT	settings UDP_START_TIMEOUT
UDP End of media event timeout	settings UDP_END_TIMEOUT	settings UDP_END_TIMEOUT
Full screen mode	settings FULLSCREEN	settings FULLSCREEN
Left Margin	config.txt fe_generic.display.margin.left	settings BROWSER_MARGIN_LEFT
Right Margin	config.txt fe_generic.display.margin.right	settings BROWSER_MARGIN_RIGHT
Top Margin	config.txt fe_generic.display.margin.top	settings BROWSER_MARGIN_TOP
Bottom Margin	config.txt fe_generic.display.margin.bottom	settings BROWSER_MARGIN_BOTTOM
Network Configuration page		
Ethernet Link	NOR Flash ETHERNET	NOR Flash ETHERNET
DHCP Info	NOR Flash DHCP	NOR Flash DHCP
Hostname	hostname HOSTNAME (or in netconf file, depending on build)	hostname HOSTNAME (or in netconf file, depending on build)
IP Address	NOR Flash IPADDR (or in netconf file, depending on build)	NOR Flash IPADDR (or in netconf file, depending on build)
Gateway	NOR Flash GATEWAY (or in netconf file, depending on build)	NOR Flash GATEWAY (or in netconf file, depending on build)
Netmask	NOR Flash NETMASK	NOR Flash NETMASK

Area	Fresco	Opera
Domain	netconf DOMAIN	netconf DOMAIN
DNS	NOR Flash DNS	NOR Flash DNS
Lease time	DHCP LEASETIME	DHCP LEASETIME
Renewal time	DHCP RENEWALTIME	DHCP RENEWALTIME
Rebind time	DHCP REBINDTIME	DHCP REBINDTIME
Time Server	NOR Flash TIME_SERVER	NOR Flash TIME_SERVER
NTP Client timeout	settings NTPCLIENT_TIMEOUT	not used
Time Zone	netconf TIME_ZONE	netconf TIME_ZONE
Multicast Bootstrap Address	NOR Flash MULTICAST_ BOOTSTRAP_GROUP	NOR Flash MULTICAST_ BOOTSTRAP_GROUP
Multicast Bootstrap Port	NOR Flash MULTICAST_ BOOTSTRAP_PORT	NOR Flash MULTICAST_ BOOTSTRAP_PORT
Multicast Filesystem Address	NOR Flash MULTICAST_ FILESYSTEM_GROUP	NOR Flash MULTICAST_ FILESYSTEM_GROUP
Multicast Filesystem Port	NOR Flash MULTICAST_ FILESYSTEM_PORT	NOR Flash MULTICAST_ FILESYSTEM_PORT
TFTP Server	NOR Flash TFTP_SERVER	NOR Flash TFTP_SERVER
TFTP Load File	NOR Flash TFTP_LOADFILE	NOR Flash TFTP_LOADFILE
Packet Ordering	netconf PACKET_ORDERING	netconf PACKET_ORDERING
PPP Username	NOR Flash PPP_USERNAME	NOR Flash PPP_USERNAME
PPP Password	NOR Flash PPP_PASSWORD	NOR Flash PPP_PASSWORD
Hardware Information page		
Product	hard coded	hard coded
Processor	hard coded	hard coded
SDRam	hard coded	hard coded
Flash	hard coded	hard coded
Processor Speed	hard coded	hard coded

Area	Fresco	Opera
Board Revision	hard coded	hard coded
Software version page		
Version	/etc/version	/etc/version
Update Software page		
Address		
Port		
Identity page		
MAC Address	NOR Flash MAC_ADDRESS	NOR Flash MAC_ADDRESS
Serial Number	NOR Flash SERIAL_ID	NOR Flash SERIAL_ID
Infra-Red Configuration		
IR brand code	settings IR_BRAND	settings IR_BRAND
TVI Configuration		
TVI protocol	settings TVI_TYPE	settings TVI_TYPE

Chapter 7—Set-top box configuration pages for Opera 9

This chapter describes how to use the Amino set-top box configuration pages for Opera 9 builds, which provide customisation options for both administrators and end-users.

7.1 About the set-top box configuration pages.

Set-top boxes with browsers always include HTML configuration pages, displayed on the television screen, enabling local access and editing of configuration areas.

The pages are divided into an user area (**Preferences pages**)

Help	
IR control	Menu navigation keys
A/V Setup	Up / Down - Change selection in side menu
Languages	Left / Right - Change in selection top menu
Reboot	OK / Enter - Enter selected screen
	Escape / Red - Quit
	Screen keys
	Up / Down - Change selected item
	Left / Right - Change value of combobox
	Blue - save values, exit to menu navigation
	Yellow - Revert changes to values
	Red - Cancel changes, exit to menu navigation
	RED - Cancel changes / BLUE - Accept changes

Figure 7.1 Typical Opera 9 Preferences page

and an administrator area (**Management pages**).

Help	
Info	Menu navigation keys
Browser	Up / Down - Change selection in side menu Left / Right - Change in selection top menu OK / Enter - Enter selected screen
Video	Escape / Red - Quit
Network	Screen keys Up / Down - Change selected item Left / Right - Change value of combobox
Upgrade	Blue - save values, exit to menu navigation
Reboot	Yellow - Revert changes to values Red - Cancel changes, exit to menu navigation
RED - Cancel changes / BLUE - Accept changes	

Figure 7.2 Typical Opera 9 Management page

7.1.1 Changing the configuration settings

A normal sequence for changing configuration via the set-top box configuration pages is as follows:

1. Access the configuration pages

The user presses a combination of keys on the keyboard to access the required pages (or via the remote control, for the **Preferences** pages). They are required to enter a password before they can access the **Management** pages.

Warning:

Amino strongly recommends that you change the default passwords when deploying our set-top boxes. See Section 4.4 of the Amino *Installation and Upgrade Guide* for information on changing these default passwords.

2. Display the page

The user navigates to the page that contains the settings they wish to change.

3. Edit the setting

Settings are displayed as either text fields or check boxes, which can be edited via the keyboard or remote control.

4. Save and verify the change

The user clicks on a save button on the screen. For changes via the **Management** pages, a second password is required to confirm the change.

5. Write the changes

The set-top box executes the command. In most cases, this involves calling the `libconfig` command that edits the required setting in the relevant configuration area (for example, NOR Flash or settings file).

7.2 Getting started

The instructions in this section assume that the set-top box you want to communicate with is powered and connected to the network.

To use the **Preferences** pages, you will need the following:

- An Amino remote control or IR keyboard

To use the **Management** pages, you will need the following:

- An Amino IR keyboard (optionally also a remote control)
- You will need to know the password for the `mngread` and `mngwrite` user names on the set-top box. These are `leaves` and `snake` respectively if you have not changed the defaults.

Warning:

Amino strongly recommends that you change the default passwords when deploying our set-top boxes. See Section 4.4 of the Amino *Installation and Upgrade Guide* for information on changing these default passwords.

7.2.1 Keyboard and remote operation of the configuration pages

Although the actual functionality enabled is slightly different, the general ways of communicating with the Management and Preferences pages are similar, and the table below shows some of the remote control buttons and keyboard keys that enable important functionality:

Functionality	Remote control	Keyboard
Move around the items on the page.	Arrow buttons	Arrow keys
Select an option / press a button on the page.	OK button	Enter key
Delete text you have entered.	LAST CH button (grey remote control) or P<P button (black remote control)	Back Space key.
Display Preferences pages	MENU button	Alt-P key combination, or Settings button.
Display Management pages		Alt-M key combination.

In general, the **Management** pages require the use of a keyboard. The **Preferences** pages are designed for use with the remote control.

7.3 Preferences pages

The set-top box Preferences pages are a simple interface that enables users to change basic set-top box configuration areas such as video, subtitle and keyboard set-up. The pages are accessed locally via an Amino IR remote control (or keyboard). The Preferences pages are designed for use by end-users.

Help	
IR control	Menu navigation keys Up / Down - Change selection in side menu Left / Right - Change in selection top menu
A/V Setup	OK / Enter - Enter selected screen
Languages	Escape / Red - Quit
Reboot	Screen keys Up / Down - Change selected item Left / Right - Change value of combobox Blue - save values, exit to menu navigation Yellow - Revert changes to values Red - Cancel changes, exit to menu navigation
RED - Cancel changes / BLUE - Accept changes	

Figure 7.3 Opera 9 Preferences page.

7.4 Using the Preferences pages

The Preferences pages are divided into several areas. When you first access the pages, a menu that lists the available areas is displayed. The menu includes the following items:

Area	Allows you to:
IR Control	View and edit keyboard and remote configuration.
A/V Setup	View and edit audio, TV and video set-up.
Languages	View and edit set-up.
Reboot	Reboot the Set-top Box.

7.4.1 Navigation - using the remote control

Once the Preference pages are open, you may use either the keyboard or remote control to navigate around the pages and change settings. The Preferences pages are designed to be able to be used with just the Amino remote control, so the usage instructions all specify what buttons to press on this remote control. It is also possible to use equivalent keyboard options.

- Use the arrow buttons to move up or down the menu page, then press the **OK** button to select the page you want to view.
- Once the page you want is displayed, you can use the arrow buttons to move around it, make changes if required and then use the **BLUE** button on the remote or the **Enter** button on the key-

board. To reject the changes, use the **RED** button on the remote and the **Escape** button on the keyboard.

- Press **OK** or **Enter** to confirm this.

7.4.2 Viewing and editing the settings

The following section gives a brief summary of how to use the Preferences pages to change configuration settings.

7.4.2.1 To view the configuration

1. Open the page for the configuration area you want to view. The current configuration settings are displayed.
2. To return to the menu page, move to the Preferences page and press **OK**.

7.4.2.2 To change the configuration settings

1. Open the page for the configuration area you want to view.
2. Use the arrow buttons to move to the setting you want to change. As you move around the page, the current setting that you have currently selected is highlighted.
3. To select an option where there are settings you wish to change press the OK button.
4. Use the arrow buttons to move to the setting you want to change.
5. Make the changes you require:
 - To select values from a list, press the **OK** button to display the choices, use the left and right arrow buttons to change to the value want, then press **OK** again to select the new value.
6. When you are happy with your changes, press the **BLUE** button on the remote. If you are using the infra-red keyboard, use the **Enter** button. To reject the changes, use the **RED** button on the remote and the **Escape** button on the keyboard. There will be a short delay while the changes are written to the set-top box's configuration (the set-top box's LED will flash during this time).
7. Press **OK** or **Enter** to confirm this.

7.4.2.3 Closing the Preferences pages

To leave the Preferences pages without making changes, press the **RED** button and then press **OK**.

7.5 Preferences pages - configuration areas

The sections that follow detail the main settings available. Each section relates to a page accessible from the main menu. For general information on changing configuration via the Management pages, see ["Management pages"](#) on page 108.

7.5.1 IR control

These pages enable you to view and edit keyboard and IR remote configuration.

Figure 7.4 Opera 9 IR control (Basic)

The following settings are available:

Keyboard Repeat delay (1-4)

See also [DELAY_FACTOR](#). The length of time that a user holds a key down on an IR input device (for example, the IR keyboard) in order to make it repeat.:

Value	Description
1	16cs delay rate.
2	32cs delay rate.
3	64cs delay rate.
4	96cs delay rate.

Repeat rate (0,2-30 cs) Controls the number of characters per second for IR input devices (for example, the IR keyboard). Set an even-number value in the range 2 - 30 (rate in centi-seconds), or set 0 for no repeat. See also [REPEAT_RATE](#).

Text entry

Enables or disables remote text entry via the remote control. If text entry is enabled, the user enters text by holding down the appropriate number key. See also [TEXT_ENTRY](#).

Note: Repeat rate must be set to 0 (zero) and remote text entry must be enabled for remote text entry to work.

Help	Basic	Advanced
IR control	Keyboard layout	United States
	IR Brand	0
A/V Setup		
Languages		
Reboot		
RED - Cancel changes / BLUE - Accept changes		

Figure 7.5 Opera 9 IR control (Advanced)

Keyboard layout

Sets the layout for the IR keyboard.

IR brand

Sets the brand code used to pair the set-top box with a particular Amino remote control. The value must be in the range 000 - 015 (and 100 –115 for the AmiNET 125 and 130), and must match the code on the remote control that you want to use to with this set-top box. See also [IR_BRAND](#).

Additional information on the Infra-red remote control is given in [Appendix I, "Pairing an IR remote control with a set-top box"](#).

7.5.2 A/V setup

These pages enable you to view and edit the A/V set-up for the STB.

Help	Audio	Video	RF	Advanced
IR Control	Minimum volume	1		
	Maximum volume	100		
A/V Setup				
Languages				
Reboot				
RED - Cancel changes / BLUE - Accept changes				

Figure 7.6 Typical Opera 9 Audio Preferences page

The following settings are available:

Minimum Volume (0-100)

Sets the minimum set-top box volume. This must be less than the maximum volume, and in the range 0 - 100 (percent). See also [MINIMUM_VOLUME](#).

Maximum Volume (0-100)

Sets the maximum set-top box volume. This must be greater than the minimum volume, and in the range 0 - 100 (percent). See also [MAXIMUM_VOLUME](#).

Help	Audio	Video	RF	Advanced
IR Control	TV type		16:9	
	Display mode		Auto	
A/V Setup	Output resolution •		Standard Definition	
Languages	Video output •		HDMI (SD) + YPbPr + COMPOSITE	
Reboot			• Requires reboot	
RED - Cancel changes / BLUE - Accept changes				

Figure 7.7 Typical Opera 9 Video Preferences page

TV type Sets how video is formatted for the TV. See also [DISPLAY_MODE](#).

The following options are available:

Value	Description
4:3	Sets a 4:3 screen ratio.
16:9	Sets a 16:9 screen ratio.

Display mode Sets how video is formatted for the TV. See also [DISPLAY_MODE](#).

Note that the options available change depending on the **TV type** setting:

Value	Description
Pan & Scan (with 4:3 mode)	For televisions with no automatic aspect ratio switching, where the video image is required to fill the full 4:3 screen. In this mode, 4:3 content fits the screen correctly, and any 16:9 video content is cropped on the left and right sides.
Letterbox (with 4:3 mode)	For televisions with no automatic aspect ratio switching, where the full 16:9 screen is required. In this mode, 4:3 content fits the screen correctly, and any 16:9 content is displayed in full, with black bars above and below.
Stretch (4:3 to 16:9) (with 16:9 mode)	Ignores the aspect ratio of the video, and assume that it is the same as the ratio of the output. So on 16:9 display, a 4:3 image will appear horizontally distorted. On a 4:3 display, a 16:9 image will appear vertically distorted.
Auto (with 16:9 mode)	For televisions which have automatic ratio switching. In this mode, the television switches between 4:3 and 16:9 depending on the video content, and full content is displayed for both.

Output Resolution Selects the output resolution, which should be one of the following options:

Standard Definition (not available on the A130M)

576p/480p (depending on whether the value of [TVSYSTEM](#) is PAL or NTSC).

720p

1080i

Note: The box must be re-booted in order for the changes to take effect.

See also [OUTPUT_RESOLUTION](#).

Video output Sets the output format of the set-top box. See also [OUTFMT](#).

The following table shows which video output format choices the Management and Preferences pages offer for each of the types of set-top box on the **Video** page.

Set-top box type	Output format choices offered
AmiNET103	COMPOSITE
AmiNET110 AmiNET110H	COMPOSITE S-VIDEO COMPOSITE + RGB COMPOSITE + S-VIDEO COMPOSITE + YPbPr RF
AmiNET125	COMPOSITE COMPOSITE + RGB COMPOSITE + S-VIDEO COMPOSITE + YPbPr RF
AmiNET130 AmiNET130H	HDMI(SD) + COMPOSITE + RGB HDMI(SD) + COMPOSITE + S-VIDEO HDMI(SD) + COMPOSITE + YPbPr RF (130 only)
AmiNET130M	HDMI (SD)
AmiNET500	COMPOSITE + S-VIDEO + YPbPr COMPOSITE + S-VIDEO + RGB
AmiNET 530 (EU)	HDMI(SD) + COMPOSITE + RGB HDMI(SD) + COMPOSITE + S-VIDEO RF
AmiNET 530 (US)	HDMI(SD) + COMPOSITE + S-VIDEO HDMI(SD) + COMPOSITE + YPbPr RF

Note: The box must be re-booted in order for the changes to take effect.

7.5.2.1 Invalid video mode recovery

For further information on this please refer to [Appendix H, "Invalid video mode recovery"](#) .

Help	Audio	Video	RF	Advanced
IR Control	RF enable		enabled	
	Frequency table		Broadcast	
	RF channel		38	
A/V Setup				
Languages				
Reboot				
RED - Cancel changes / BLUE - Accept changes				

Figure 7.8 Typical Opera 9 RF Preferences page

RF enable Enables or disables the RF output (for platforms with RF output). See also [RFMOD_ENABLE](#).

Frequency table Sets the RF output frequency table (for platforms with RF output). The options are as follows:

Value	Description
BROADCAST	broadcast
CABLE	cable

See also [RFMOD_FREQTABLE](#).

RF Channel Sets the RF channel (for platforms with RF output). See also [RFMOD_CHAN](#).

Help	Audio	Video	RF	Advanced
IR Control	TV System		PAL-G (Europe)	
	HDMI audio mode		2 channel PCM	
A/V Setup	Native Resolution Passthrough		disabled	
Languages	Native Framerate Passthrough		disabled	
Reboot	Changing any value on this page will require a STB reboot			
RED - Cancel changes / BLUE - Accept changes				

Figure 7.9 Typical Opera 9 A/V setup (advanced) page

TV System Sets the TV standard. See also [TVSYSTEM](#). Depending on the set-top box type, the available options are as follows:

Value	Example region
PAL-I	UK
PAL-M	Brazil
PAL-N	Argentina
PAL-G	Europe
PAL-B	Australia, Ghana
PAL-H	Belgium
PAL-D	China (Note that this is not supported on the AmiNET103 or AmiNET109 platforms.)
NTSC-J	Japan
NTSC-M	USA

A complete list of the Worldwide TV Standards can be found in the *Amino TV Standards Guide*.

HDMI audio mode When Dolby Digital audio is being decoded, the decoded 2-channel PCM data is embedded in the HDMI signal, rather than the Dolby Digital data. See [HDMI_AUDIO_FORMAT](#).

Native Resolution Passthrough If this is selected native standard definition is displayed as native standard definition on a high definition display. See [NATIVE_PASSTHRU_ENABLE](#).

Native Framerate Passthrough If native framerate passthrough is turned on the STB will automatically change its output framerate to match that of the video being played. For example, if

the box is set to PAL (50Hz) and an NTSC clip is played (59Hz), the STB will switch to output at an NTSC framerate. See [NATIVE_FRAMERATE_PASSTHRU_ENABLE](#).

Note: Changing any value on this page will require an STB reboot.

7.5.3 Languages setup

These pages enable you to view and edit the audio and subtitle language configuration.

Help IR Control A/V Setup Languages Reboot	Audio	Subtitles
	Primary language	Automatic
	Secondary language	Automatic
	RED - Cancel changes / BLUE - Accept changes	

Figure 7.10 Typical Opera 9 Audio Languages page

The following settings are available:

- Primary language** Sets the primary language for an audio stream, for example, English. See also [PREFERRED_LANG](#).
- Secondary language** Sets the secondary language for an audio stream. If the STB can find no audio stream in the Primary language, it selects an audio stream in the chosen secondary language, for example, Spanish. See also [SECONDARY_LANG](#).

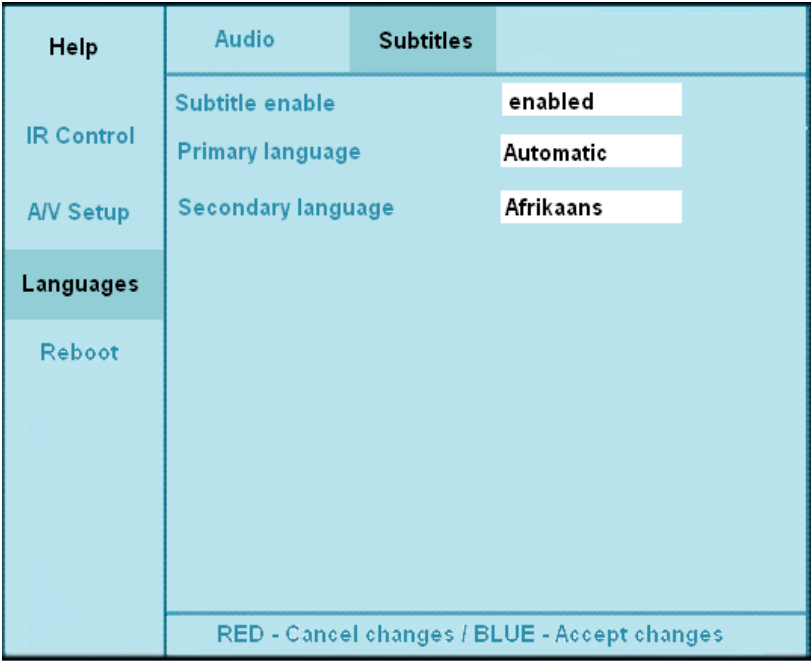


Figure 7.11 Typical Opera 9 Subtitles Languages page

Subtitle enable This allows you to enable or disable subtitle display. See also [SUBTITLES](#).

Primary subtitle language Sets the primary language for the default subtitle display. For example, English. See also [SUBTITLES_PREF_LANG](#).

Secondary subtitle language Sets the secondary language for the default subtitle display. If the set top box can find no subtitle information in the Primary language it uses the information in the Secondary subtitle language, for example, Spanish. See also [SUBTITLES_SECOND_LANG](#).

If **TVSystem** (see above) is set to **NTSC** then the following screen will be displayed.

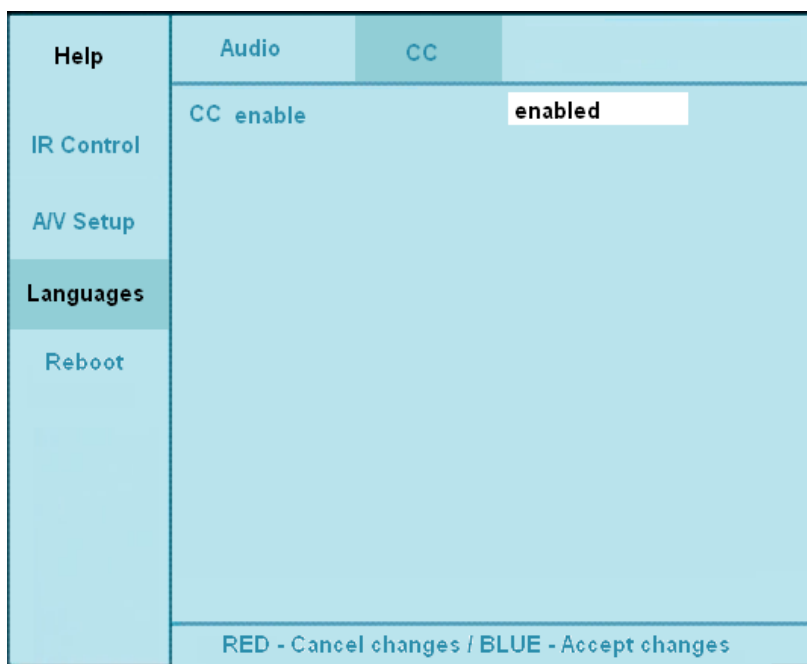


Figure 7.12 Typical Opera 9 Closed Captions Languages page

CC enable

This enables you to enable or disable closed caption display.
See [SUBTITLES](#).

7.5.4 PVR page

For AmiNET models with a PVR, this page enables you to reinitialise the hard drive.

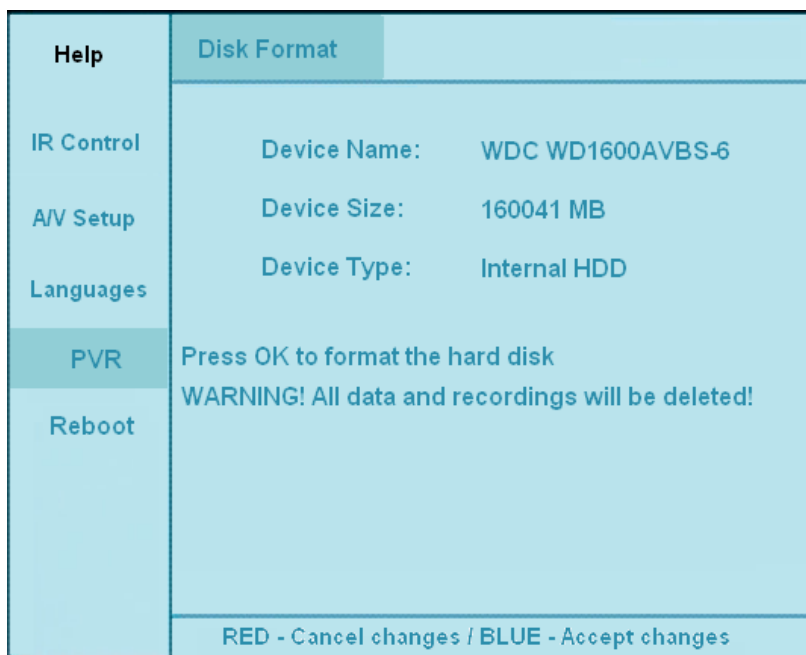


Figure 7.13 Opera 9 PVR Disk Format page

The following settings are available:

Disk Format The single **Disk Format** option will completely reformat the hard drive of the PVR. All data will be deleted. The following warning will be displayed:

Warning! All data and recordings will be deleted!

7.5.5 Reboot

This page allows you to trigger a reboot of the STB.

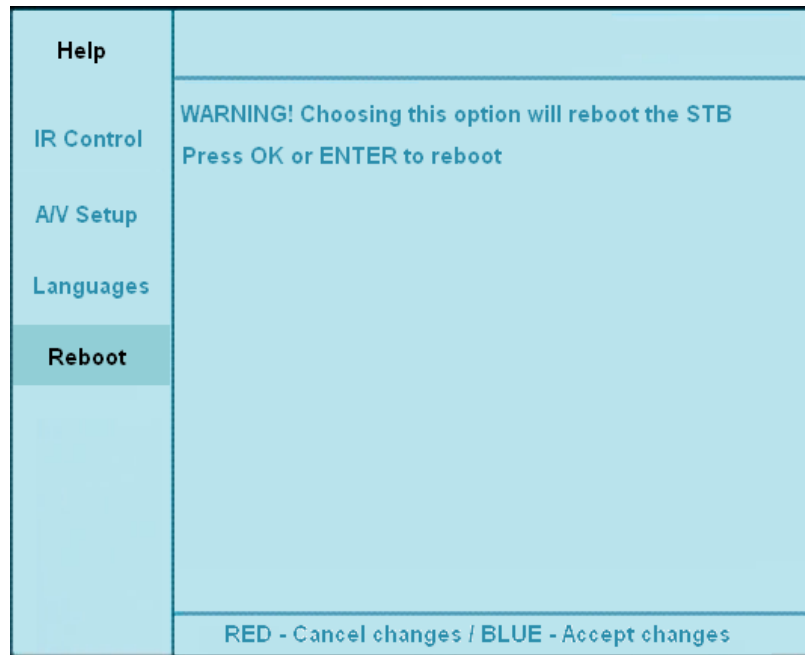


Figure 7.14 Typical Opera 9 Reboot page

7.5.6 Rebooting the set-top box via the Preference pages

1. On the main menu, move to the **Reboot** option, then press the **OK/Enter** button.
2. The set-top box reboots immediately.

7.6 Management pages

The set-top box Management pages are a simple interface that enables administrators to change set-top box configuration areas such as networking, channel list and browser set-up, as well as initiate basic operations such as rebooting and updating software. In addition, read-only access is available to areas such as version and set-top box identity settings. The pages are password-protected and accessed locally via an Amino IR keyboard (limited functionality is also supported via the remote control).

Use **Alt-M** on the keyboard to access the Management pages. You will be required to enter the management password. Management pages allow access to advanced configuration functions and are designed for use by administrators rather than end-users.

Help	
Info	Menu navigation keys
Browser	Up / Down - Change selection in side menu Left / Right - Change in selection top menu OK / Enter - Enter selected screen
Video	Escape / Red - Quit
Network	Screen keys
Upgrade	Up / Down - Change selected item Left / Right - Change value of combobox Blue - save values, exit to menu navigation
Reboot	Yellow - Revert changes to values Red - Cancel changes, exit to menu navigation
RED - Cancel changes / BLUE - Accept changes	

Figure 7.15 Opera 9 Management page

When you first access the pages, a menu that lists the available areas is displayed. The menu should include the following items:

Area	Allows you to:
Info	View and edit set-top box hardware details, software version and identity information.
Browser	View and edit the channel URLs and graphics support information.
Video	View and edit video display and timeout settings.
Network	View and edit static address information.
Upgrade	Initiate a software upgrade (multicast) or reflash.
Reboot	Reboot the set-top box.

7.6.1 Navigation - using the keyboard

Once the Management pages are displayed, you can use either the keyboard or remote control to navigate around the pages and change settings. However, the Management pages require the use of a keyboard to display them and enter text, so the usage instructions here all specify what keys to press on the keyboard. It is also possible to use equivalent remote control options in many cases.

- Use the arrow keys to move up or down the menu page, then press the **Enter** key to select the page you want to view.
- Once the page you want is displayed, you can use the arrow keys to move around it, make changes if required and then move to the **Back to Main Menu** button and press **Enter** to return to the menu.

7.6.2 Closing the Management pages

When you have finished, press the **BLUE** button on the remote. If you are using the infra-red keyboard, use the **Enter** button. To reject the changes, use the **RED** button on the remote and the **Escape** button on the keyboard. There will be a short delay while the changes are written to the set-top box's configuration (the set-top box's LED will flash during this time).

Press **OK** or **Enter** to confirm this.

7.6.3 Viewing and editing configuration

The following section describes how to view or edit the configuration using the Management pages.

7.6.3.1 Viewing

1. Open the page for the configuration area you want to view. The current configuration settings are displayed.
2. To return to the menu page, use the **RED** button on the remote and the **Escape** button on the keyboard. Press **OK** or **Enter** to confirm this.

7.6.3.2 Editing

Note that not all configuration settings can be changed. If a page does not have a **Password** textbox, then the settings are all read-only.

1. Open the page for the configuration area you want to view.
2. Use the arrow keys to move to the setting you want to change. As you move around the page, the current setting that you have currently selected is highlighted.
3. Make the changes you require:
 - To change a text field, use the **Back Space** key to delete the current value, then type the new value.
 - To select values from a drop-down list, press the Left or Right key to scroll through the choices, then press **BLUE/Enter** again to select the new value.
4. When you are happy with your changes, move to the **Password** field and type the password. If you have not changed the default password, this is *snake*. When you have finished, press the **BLUE** button on the remote. If you are using the infra-red keyboard, use the **Enter** button. To reject the changes, use the **RED** button on the remote and the **Escape** button on the keyboard.
5. Press **OK** or **Enter** to confirm this

For many configuration settings, you will now need to reboot the set-top box for the changes to take effect.

7.6.4 Rebooting the set-top box via the management pages

1. On the main menu, move to the **Reboot** option, then press the **Enter** button.
2. The set-top box reboots immediately.

7.6.5 Set-top box information (Info page)

This page enables you to View and edit set-top box hardware details, software version and identity information.

Help	Hardware	Software	Identity
Info	Product		aminet130
	CPU		STb710x
Browser	CPU speed		265.50MHz
	SDRAM		86952 kB
Video	FLASH		32768 kB
	ROM type		BGA (Atmel)
Network	Board revision		0
Upgrade			
Reboot			
RED - Cancel changes / BLUE - Accept changes			

Figure 7.16 Typical Opera 9 hardware Information page

The following settings are available:

Product	The AmiNET set-top box type.
CPU	The processor type.
CPU Speed	The processor speed.
SDRAM	The size of the SD RAM.
FLASH	The size of the Flash.
ROM Type	The type of Read Only memory.

Board revision The board revision number.

Help	Hardware	Software	Identity
Info	Software version		0.16.0 - A130 -opera9
	CR version		0.16.0 - A130 -opera9
	OEM version		
Browser			
Video			
Network			
Upgrade			
Reboot			
RED - Cancel changes / BLUE - Accept changes			

Figure 7.17 Typical Opera 9 Software information page

Software version The Software version enables you to view the version string for the software build.

CR version The Custom Resource (CR) version enables you to view the custom resource version.

OEM version The OEM version as defined by the system integrator in `/mnt/nv/oemversion`.

Help	Hardware	Software	Identity
Info	MAC address		00:02:02:1a:13:2e
	Serial number		632408F050432
	Password		
Browser			
Video			
Network			
Upgrade			
Reboot			
RED - Cancel changes / BLUE - Accept changes			

Figure 7.18 Typical Opera 9 Identity information page

MAC Address The set-top box MAC address. **This value is locked during manufacture.**

If you have a development set-top box on which the MAC address is still editable, you must not change it unless you are fully aware of the effects. See also [MAC_ADDRESS](#).

Serial Number The set-top box serial number. **This value is locked during manufacture.**

If you have a development set-top box on which the serial number is still editable, you must not change it unless you are fully aware of the effects. See also [SERIAL_ID](#).

7.6.6 Browser setup

This page enables you to view and edit the browser home page and graphics setup information.

Help	Basic	Graphics
Info	Home page	about:/start.html
	Password	
Browser		
Video		
Network		
Upgrade		
Reboot		
RED - Cancel changes / BLUE - Accept changes		

Figure 7.19 Typical Opera 9 Browser page

The following settings are available:

Home page Sets the home page. This is the URL for the page that the browser goes to when the Home key is pressed and when the set-top box has booted

successfully. The URL entered must be in the format `http://<address>`. See also [BROWSER_HOMEPAGE](#).

Help	Basic	Graphics
Info	Full screen mode	disabled
	GFX resolution	SD graphics
Browser	Left margin	0
	Right margin	0
Video	Top margin	0
	Bottom margin	0
Network	Password	
Upgrade		
Reboot		
RED - Cancel changes / BLUE - Accept changes		

Figure 7.20 Typical Opera 9 Browser Graphics page

- Full screen mode** Enables or disables full screen mode. See also [FULLSCREEN](#).
- GFX resolution** Sets the graphics resolution. One of the following options: See also [GFX_RESOLUTION](#). In this case SD graphics is the equivalent of `libconfig-set NORFLASH.GFX_RESOLUTION PAL/NTSC`. Either one will provide SD graphics, but the value of [TVSYSTEM](#) determines the final screen resolution.
- Left Margin** Sets the left browser margin, as a percentage of the graphics plane size (that is, in the range 0 - 100). Opera also allow margins to be specified in pixels. See also [BROWSER_MARGIN_LEFT](#).
- Right Margin** Sets the right browser margin, as a percentage of the graphics plane size (that is, in the range 0 - 100). Opera also allow margins to be specified in pixels. see also [BROWSER_MARGIN_RIGHT](#).
- Top Margin** Sets the top browser margin, as a percentage of the graphics plane size (that is, in the range 0 - 100). Opera also allow margins to be specified in pixels. [BROWSER_MARGIN_TOP](#).
- Bottom Margin** Sets the bottom browser margin, as a percentage of the graphics plane size (that is, in the range 0 - 100). Opera also allow margins to be specified in pixels. See also [BROWSER_MARGIN_BOTTOM](#).

7.6.7 Video setup

These pages enable you to view and edit the video configuration.

Help Info Browser Video Network Upgrade Reboot	Basic Events	
	Default video server	nCube
	Trick play	6
	Password	
RED - Cancel changes / BLUE - Accept changes		

Figure 7.21 Typical Opera9 basic Video information page

The following settings are available:

Default Video Server Sets the default video server type. The available options are:

Concurrent
 EONA
 InfoValue
 Kasenna MediaBase
 nCube
 Oracle
 Sapphire
 SeaChange
 Tandberg OpenStream
 Telefonica
 Anevia
 BitBand
 See also [RTSP_SERVER](#).

Trick-play

The default fast forward and rewind multiplier. See also [RTSP_SCALE](#).

Help	Basic	Events	
Info	RTSP start timeout	4	
	RTSP end timeout	6	
Browser	IGMP start timeout	30	
	IGMP end timeout	30	
Video	UDP start timeout	8	
	UDP end timeout	8	
Network	Password		
Upgrade			
Reboot			
RED - Cancel changes / BLUE - Accept changes			

Figure 7.22 Typical Opera9Video Events page

RTSP start timeout

Number of seconds to wait for RTSP data after sending an RTSP play command, before a no-video event is raised. This must be in the range 0 - 30, where 0 means that there will never be a timeout raised. See also [RTSP_START_TIMEOUT](#).

RTSP end timeout

Number of seconds to wait when no more RTSP data is seen, before an end-of-media event is raised. This must be in the range 0 - 30, where 0 means that there will never be a timeout raised. See also [RTSP_END_TIMEOUT](#).

IGMP start timeout

Number of seconds to wait for video data to arrive after an IGMP join command, before a no-video event is raised. This must be in the range 0 - 30, where 0 means that there will never be a timeout raised. See also [IGMP_START_TIMEOUT](#).

IGMP end timeout

Number of seconds to wait when no more IGMP data is seen, before an end-of-media event is raised. This must be in the range 0 - 30, where 0 means that there will never be a timeout raised. See also [IGMP_START_TIMEOUT](#).

UDP start timeout

Number of seconds to wait after trying to connect to a UDP media stream, before a no-video event is raised. This must be in the range 0 - 30, where 0 means that there will never be a timeout raised. See also [UDP_START_TIMEOUT](#).

UDP end timeout

Number of seconds to wait when no more UDP data is seen, before an end-of-media event is raised. This must be in the range 0 - 30, where 0 means that there will never be a timeout raised. See also [UDP_END_TIMEOUT](#).

7.6.8 Network setup

These pages enable you to view and edit the network configuration.

Help	Basic	Advanced	DHCP Info
Info	DHCP enabled		
Browser	IP address		
Video	Network		
	Gateway		
	DNS		
Network	Password		
Upgrade			
Reboot			
RED - Cancel changes / BLUE - Accept changes			

Figure 7.23 Typical Opera 9 Network Information (DHCP enabled) page

The following settings are available:

DHCP

Sets whether the STB will be getting its network settings dynamically from the DHCP server (**DHCP enabled**).

If the set-top box will not be getting all its network settings dynamically from the DHCP server (**DHCP disabled**), then you will need to ensure that the ap-

appropriate static settings are specified on this page (for example, IP address and netmask). See also [DHCP](#).

Help	Basic	Advanced	DHCP Info
Info	DHCP		disabled
Browser	IP address		0.0.0.0
	Netmask		0.0.0.0
Video	Gateway		0.0.0.0
	DNS		0.0.0.0
Network	Password		
Upgrade			
Reboot			
RED - Cancel changes / BLUE - Accept changes			

Figure 7.24 Typical Opera 9 Network Information (DHCP disabled) page

- IP Address** Sets the static IP address for the set-top box. This is only needed if the set-top box does not retrieve its network settings from a DHCP server. See also [IPADDR](#).
- Netmask** Sets the netmask. This is only needed if the set-top box does not retrieve its network settings from a DHCP server. See also [NETMASK](#).
- Gateway** Sets the IP address for the gateway for the set-top box. This is only needed if the set-top box does not retrieve its network settings from a DHCP server. See also [GATEWAY](#).

DNS

Sets the IP addresses for the domain name servers for the set-top box. This is only needed if the set-top box does not retrieve its network settings from a DHCP server. See also [DNS](#).

Help	Basic	Advanced	DHCP Info
Info	Host name		
	Domain		
Browser	Time server		0.0.0.0
Video	NTP client timeout		
	Timezone		
Network	Ethernet link		Auto detect (default)
Upgrade	Packet ordering		disabled
	Password		
Reboot			
RED - Cancel changes / BLUE - Accept changes			

Figure 7.25 Typical Opera 9 Network Information (Advanced) page:

- Hostname** Sets the hostname for the set-top box.
- Domain** Sets the domain for the set-top box. This is only needed if the set-top box does not retrieve its network settings from a DHCP server. See also [DOMAIN](#).
- Time server** The address of the NTP client (either static or as from the DHCP server). See [TIME_SERVER](#).
- NTP client timeout** The maximum waiting time for a server response. See [NTPCLIENT_TIMEOUT](#).
- Timezone>** The time zone in which the STB is operating. See [TIME_ZONE](#).
See <http://www.twinsun.com/tz/tz-link.htm> or http://en.wikipedia.org/wiki/List_of_tz_zones_by_name
- Ethernet Link** Sets the default speed for the main ethernet port to one of the following values:
- Auto detect (this is the default)
 - 10Mbit/s Half Duplex
 - 10Mbit/s Full Duplex
 - 100Mbit/s Half Duplex
 - 100Mbit/s Full Duplex
- See also [ETHERNET](#).

Packet Ordering Enables or disables packet ordering. If packet ordering is enabled, the set-top box buffers out of order packets. See also [PACKET_ORDERING](#).

	Basic	Advanced	DHCP Info
Help			
Info	IP address	10.174.255.9	
	Netmask	255.255.0.0	
Browser	Gateway	110.174.0.1	
	Domain	'aminocom.com'	
Video	DNS	10.174.2.0	
	Lease time	86400	
Network	Renewal time	43200	
	Rebind time	75600	
Upgrade			
Reboot			
RED - Cancel changes / BLUE - Accept changes			

Figure 7.26 Typical Opera 9 Network DHCP Information page

- IP Address** Sets the static IP address for the set-top box. This is only needed if the set-top box does not retrieve its network settings from a DHCP server. See also [IPADDR](#).
- Netmask** Sets the netmask. This is only needed if the set-top box does not retrieve its network settings from a DHCP server. See also [NETMASK](#).
- Gateway** Sets the IP address for the gateway for the set-top box. This is only needed if the set-top box does not retrieve its network settings from a DHCP server. See also [GATEWAY](#).
- Domain** Sets the domain for the set-top box. This is only needed if the set-top box does not retrieve its network settings from a DHCP server. See also [DOMAIN](#).
- DNS** Sets the IP addresses for the domain name servers for the set-top box. This is only needed if the set-top box does not retrieve its network settings from a DHCP server. See also [DNS](#).
- Lease time** The DHCP lease time as returned by the DHCP server. See also [LEASETIME](#).
- Renewal time** The DHCP renewal time as returned by the DHCP server. See also [RENEWALTIME](#).
- Rebind time** The DHCP rebind time as returned by the DHCP server. See also [REBINDTIME](#).

7.6.9 Upgrade

This page enables you to trigger a multicast upgrade of the STB.

Help		
Info	WARNING! Choosing this option will delete all files in the system. You should only do this if you are able to download new software onto the box.	
Browser	Leave multicast address and port blank to do a reflash instead of an upgrade.	
Video	Multicast address	
Network	Multicast port	
Upgrade	Password	
Reboot		
RED - Cancel changes / BLUE - Accept changes		

Figure 7.27 Typical Opera 9 Upgrade page

7.6.9.1 To initiate a software upgrade via the management pages

Before you initiate a software upgrade, you will need to ensure that new software is available. In most cases, this means that the multicast system must be set up, with the multicast server transmitting appropriate new software images.

1. On the main menu, move to the **Upgrade** option, then press the **Enter** button. The **Upgrade** page is displayed.
2. You can either upgrade just the main software image or you can reflash the set-top box (that is, delete the contents of the NAND flash and reload both a new bootstrap and a new software upgrade image). When the set-top box performs a software upgrade, it tests the new software and can revert to the old software if there is a problem. When the box reflashes, it wipes its current software before installing new software so it may not be able to revert to the old software if there is a problem.

7.6.9.2 To upgrade the main set-top box image

- In the **Multicast address** field, enter the IP address for the multicast image (this is the IP address specified in the multicast server configuration).
- In the **Multicast Port** field, enter the port for accessing the multicast image (again, as specified in the multicast server configuration).
- In the **Password** field, enter the password. If you have not changed the default, this is **snake**.
- Press the **BLUE** button on the remote. If you are using the infra-red keyboard, use the **Enter** button to start the upgrade.

7.6.9.3 To reflash the set-top box

- Leave the **Address** and **Port** fields blank.
- In the **Password** field, enter the password. If you have not changed the default, this is `snake`.

Warning:

Amino strongly recommends that you change the default passwords when deploying our set-top boxes. See Section 4.4 of the Amino *Installation and Upgrade Guide* for information on changing these default passwords.

3. Press the **BLUE** button on the remote. If you are using the infra-red keyboard, use the **Enter** button to start the upgrade or reflash.

7.6.10 Reboot

This page enables you to trigger a reboot of the STB.

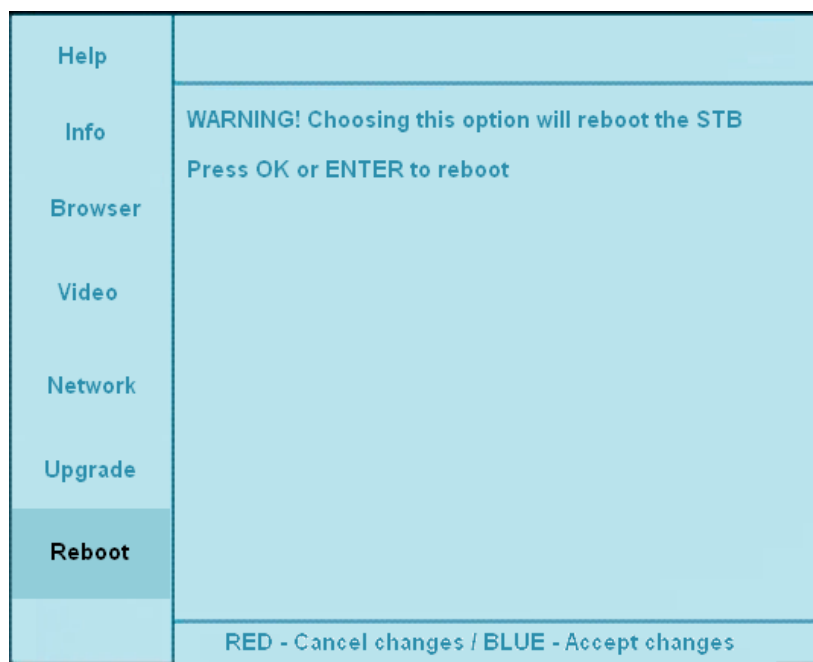


Figure 7.28 Typical Opera 9 Reboot page

7.6.11 Rebooting the set-top box via the Management pages

1. On the main menu, move to the **Reboot** option, then press the **OK/Enter** button.
2. The set-top box reboots immediately.

7.7 Configuration page settings for Opera 9

The main settings needed to configure the set-top box can be accessed via the Configuration pages. Which configuration area these settings are read from (that is, configuration file or NOR Flash) depends on the software build. The following table shows which area the Configuration pages read and write settings to for the Opera 9 browsers (the setting is specified with the file name (or NOR Flash) on the first line and the setting name on the next line).

You may need this information if you want to trial settings via the Configuration pages and then copy the new configuration to the image components used to create a new software image.

7.7.1 Preferences pages

Area	Opera 9
IR Control pages	
Repeat delay	Settings DELAY_FACTOR
Repeat rate	Settings REPEAT_RATE
Text entry	Settings TEXT_ENTRY
IR brand code	Settings IR_BRAND
A/V setup pages	
Minimum Volume	Settings MINIMUM_VOLUME
Maximum Volume	Settings MAXIMUM_VOLUME
TV type	Settings DISPLAY_MODE
Display mode	Settings DISPLAY_MODE
Output resolution	NOR Flash OUTPUT_RESOLUTION
Video output	NOR Flash OUTFMT
RF enable	NOR Flash RFMOD_ENABLE
Frequency table	NOR Flash RFMOD_FREQTABLE
RF Channel	NOR Flash RFMOD_CHAN
TV System	NOR Flash TVSYSTEM
HDMI audio mode	NOR Flash HDMI_AUDIO_FORMAT
Native Resolution Passthrough	NOR Flash NATIVE_PASSTHRU_ENABLE
Native Framerate Passthrough	NOR Flash NATIVE_FRAMERATE_PASSTHRU_ENABLE
Languages setup pages	
Primary language	Settings PREFERRED_LANG

Area	Opera 9
Secondary language	Settings SECONDARY_LANG
Subtitle enable CC enable	NOR Flash SUBTITLES
Primary subtitle language	Settings SUBTITLES_PREF_LANG (or <code>usersettings</code> file if the file exists)
Secondary subtitle language	Settings SUBTITLES_SECOND_LANG (or <code>usersettings</code> file if the file exists)

7.7.2 Management pages

Area	Opera 9
STB Information pages	
Product	hard coded
CPU	hard coded
CPU speed	hard coded
SDRAM	hard coded
FLASH	hard coded
ROM type	hard coded
Board Revision	hard coded
Software version	<code>/etc/version</code>
CR version	<code>/mnt/nv/cversion</code>
OEM version	<code>/mnt/nv/oemversion</code>
MAC Address	NOR Flash MAC_ADDRESS
Serial Number	NOR Flash SERIAL_ID
Browser setup pages	
Home page	Settings BROWSER_HOMEPAGE
Full screen mode	Settings FULLSCREEN
GFX resolution	Settings GFX_RESOLUTION
Left Margin	Settings BROWSER_MARGIN_LEFT
Right Margin	Settings BROWSER_MARGIN_RIGHT
Top Margin	Settings BROWSER_MARGIN_TOP
Bottom Margin	Settings BROWSER_MARGIN_BOTTOM

Area	Opera 9
Video setup pages	
Default Video Server	Settings RTSP_SERVER
Trick play	Settings RTSP_SCALE
RTSP start timeout	Settings RTSP_START_TIMEOUT
RTSP end timeout	Settings RTSP_END_TIMEOUT
IGMP start timeout	Settings IGMP_START_TIMEOUT
IGMP end timeout	Settings IGMP_START_TIMEOUT
UDP start timeout	Settings UDP_START_TIMEOUT
UDP end timeout	Settings UDP_END_TIMEOUT
Network setup pages	
DHCP	NOR Flash DHCP
IP Address	NOR Flash IPADDR (or in <code>netconf</code> file, depending on build)
Netmask	NOR Flash NETMASK
Gateway	NOR Flash GATEWAY (or in <code>netconf</code> file, depending on build)
DNS	NOR Flash DNS
Hostname	hostname HOSTNAME (or in <code>netconf</code> file, depending on build)
Domain	<code>netconf</code> DOMAIN
Time Server	NOR Flash TIME_SERVER
NTP Client timeout	Settings NTPCLIENT_TIMEOUT
Time zone	<code>netconf</code> TIME_ZONE
Ethernet Link	NOR Flash ETHERNET

Area	Opera 9
Packet Ordering	netconf PACKET_ORDERING
IP Address	NOR Flash IPADDR (or in netconf file, depending on build)
Netmask	NOR Flash NETMASK
Gateway	NOR Flash GATEWAY (or in netconf file, depending on build)
DNS	NOR Flash DNS
Lease time	DHCP LEASETIME
Renewal time	DHCP RENEWALTIME
Rebind time	DHCP REBINDTIME

Appendix A—NOR Flash settings

The following table describes the settings available in the NOR Flash. For convenience sake, these are listed in alphabetical order. Note that whether these values are used depends on the software and hardware build.

Default values listed here are used if no value is supplied. Note, though, that in many cases the actual default is build-specific, so may not be as specified.

The examples show how to enter the setting if you are editing the settings file directly. See the appropriate documentation for information on how to enter values using other means (for example, JMACX or `libconfig`).

Setting	Values	Description
BOARDREV	16-bit integer:	Specifies the board type (relates to the region that the set-top box is designed to work in and indicates board features). For further information on Board revision numbers see Appendix F, "Board revision numbers" Read-only. Default: None. Example: <pre>libconfig-get NORFLASH.BOARDREV > 16</pre>
CORE_LANG	3-character ISO 639-3 compliant string.	3-character ISO639-3 compliant string to indicate the (major) language used by the STB for core functionality such as error messages, status messages, UI messages. Not to be confused with the audio language settings, though this may be used to suggest one in their absence. See http://www.sil.org/ISO639-3/codes.asp for code details. Default: Example: <pre>libconfig-set NORFLASH.CORE_LANG "eng"</pre>

Setting	Values	Description
CUSTOMER_DATA	< 12 characters.	A string containing no more than 12 characters, this can be anything the customer wants, its use is not pre-scribed. Default: Example: <pre>libconfig-set NORFLASH.CUSTOMER_DATA "PANIC BUTTON"</pre>
DHCP	Y=Always use DHCP N=Do not use DHCP	Configures whether network configuration is carried out by contacting a DHCP server. This value is used if USE_NOR is set to Y in the netconf file. Note that if DHCP is set to "N", the multicast upgrade values and other settings are read from the settings listed in this table (e.g. the MULTICAST_<name> settings). Default: Example: <pre>libconfig-set NORFLASH.DHCP "Y"</pre>
DHCP_AUTHENTICATION	None" Tele2 Samsung	None - no DHCP authentication Tele2 - DHCP authentication using the Tele2 vendor string. Samsung _ DHCP authentication using the Samsung vendor string. Default: None Example: <pre>libconfig-set NORFLASH.DHCP_ AUTHENTICATION "Tele2"</pre>
DHCPTIMEOUT	Time in seconds passed as a string	Sets how long (in seconds) the DHCP timeout value should be before a new request is made. Default: Example: <pre>libconfig-set NORFLASH.DHCPTIMEOUT "3600"</pre>
DI		This contains a string representation of an integer that is increased on a per build basis to ensure that during a multicast upgrade an older build is not put onto the STB. Read-only. Default: 0 Example: <pre>libconfig-get NORFLASH.DI > 2</pre>

Setting	Values	Description
DNS	Valid IP address.	Specifies the IP address of the DNS server that the set-top box should be using. This is the value used if DHCP is set to N (or if the set-top box cannot retrieve an IP address from the DHCP server). Default: Example: libconfig-set NORFLASH.DNS "123.4.5.67"
ETHERNET	AUTO=auto-detect. 10HD=10Mbit/s half duplex. 10FD=10Mbit/s full duplex. 100HD=100Mbit/s half duplex. 100FD=100Mbit/s full duplex.	Sets the default speed for the main ethernet port. Default: AUTO Example: libconfig-set NORFLASH.ETHERNET "10HD"
GATEWAY	Valid IP address.	Specifies the gateway for the set-top box. This is the value used if DHCP is set to N (or if the set-top box cannot retrieve an IP address from the DHCP server). Default: Example: libconfig-set NORFLASH.GATEWAY "123.4.5.67"
IDENT		The model identity string of the STB. Read-only. Default: None. Example: libconfig-get NORFLASH.IDENT >aminet110
IGMP_MAX_VER	2 or 3	Specifies the maximum version of IGMP protocol to use. NULL or 0 if no version has been set Default: None. Example: libconfig-set NORFLASH.IGMP_MAX_VER "2"

Setting	Values	Description
IPADDR	Valid IP address.	Configures the static IP address of the set-top box. This is the value used if DHCP is set to N. Default: Example: <pre>libconfig-set NORFLASH.IPADDR "123.45.6.7"</pre>
LINKSTATE_FAIL_THRESHOLD (only for Koolconnect builds)	A string representation of an integer, containing a time-out in seconds.	Configures the timeout for the link state. Default: <pre>60</pre> Example: <pre>libconfig-set NORFLASH.LINKSTATE_TIMEOUT "30"</pre>
LINKSTATE_TIMEOUT (only for Koolconnect builds)	A string representation of an integer, containing a time-out in seconds.	Configures the timeout for the link state. Default: <pre>10</pre> Example: <pre>libconfig-set NORFLASH.LINKSTATE_TIMEOUT "30"</pre>
LOCK	0=The NOR Flash is not locked. 1=The NOR Flash is locked.	Specifies the lock state of the NOR Flash. If this is set to 1, values such as the MAC address of the STB, the serial number of the STB and some CA settings that identify an individual set-top box cannot be changed. Read-only. Default: <pre>0</pre> Example: <pre>libconfig-get NORFLASH.LOCK >1</pre>
MAC_ADDRESS		Sets the unique MAC address of the set-top box, using six 8-bit values separated by colons, e.g. aa:bb:cc:dd:ee:ff. If the MAC address is changed, then the set-top box needs to be rebooted for the new value to take effect. Read-only, except in production builds. Default: <pre>" "</pre> Example: <pre>libconfig-get NORFLASH.MAC_ADDRESS >00:02:02:ff:fc:64</pre>

Setting	Values	Description
MULTICAST_BOOTSTRAP_GROUP	A valid multicast IP address in the range: 224.0.0.0 – 239.255.255.255	Configures a static multicast bootstrap group. Enter a valid IP address for the group, and set MULTICAST_BOOTSTRAP_PORT with the port to use. This value is used: - As a fall-back bootstrap group when the group and port specified by DHCP cannot be found - For deployments where booting information is not held on a DHCP server The set-top box always tries to use a value served from a DHCP in preference to the statically defined value, unless DHCP is set to N Default: 0.0.0.0 Example: <pre>libconfig-set NORFLASH.MULTICAST_BOOTSTRAP_GROUP "234.56.78.9"</pre>
MULTICAST_BOOTSTRAP_PORT	0 – 65535	Configures a static multicast bootstrap port. You will also need to set MULTICAST_BOOTSTRAP_GROUP with the IP address to use. This value is used: as a fall-back port group when the group and port specified by DHCP cannot be found for deployments where booting information is not held on a DHCP server The set-top box always tries to use a value served from a DHCP in preference to the statically defined value, unless DHCP is set to N. Default: 0 Example: <pre>libconfig-set NORFLASH.MULTICAST_BOOTSTRAP_PORT "11111"</pre>

Setting	Values	Description
MULTICAST_FILESYSTEM_GROUP	Valid multicast IP address in range 224.0.0.0 - 239.255.255.255	Configures a static multicast file system group. Enter a valid IP address for the group, and set MULTICAST_FILESYSTEM_PORT with the port to use. This value is used: - as a fallback filesystem group when the group and port specified by DHCP cannot be found - for deployments where booting information is not held on a DHCP server Note: the set-top box always tries to use a value served from a DHCP in preference to the statically defined value, unless DHCP is set to N. Default: 0.0.0.0 Example: <pre>libconfig-set NORFLASH.MULTICAST_FILESYSTEM_GROUP "239.4.5.67"</pre>
MULTICAST_FILESYSTEM_PORT	0 – 65535	Configures a static multicast file system port. You will also need to set MULTICAST_FILESYSTEM_GROUP with the IP address to use. This value is used: - As a fallback filesystem port when the group and port specified by DHCP cannot be found - For deployments where booting information is not held on a DHCP server Note: The set-top box always tries to use a value served from a DHCP in preference to the statically defined value, unless DHCP is set to N. Default: 0 Example: <pre>libconfig-set NORFLASH.MULTICAST_FILESYSTEM_PORT "11111"</pre>

Setting	Values	Description
MULTICAST_UPGRADE_GROUP	Valid multicast IP address in range 224.0.0.0 - 239.255.255.255	Configures a static multicast upgrade group. Enter a valid IP address for the group, and set MULTICAST_UPGRADE_PORT with the port to use. This value is used: - As a fallback bootstrap group when the group and port specified by DHCP cannot be found. - For deployments where booting information is not held on a DHCP server. The set-top box always tries to use a value served from a DHCP in preference to the statically defined value, unless DHCP is set to N. Default: 0.0.0.0 Example: <pre>libconfig-set NORFLASH.MULTICAST_UPGRADE_GROUP "239.4.5.67"</pre>
MULTICAST_UPGRADE_PORT	0 – 65535	Configures a static multicast upgrade port. You will also need to set MULTICAST_UPGRADE_GROUP with the IP address to use. This value is used: - As a fallback upgrade group when the group and port specified by DHCP cannot be found. - For deployments where booting information is not held on a DHCP server. The set-top box always tries to use a value served from a DHCP in preference to the statically defined value, unless DHCP is set to N. Default: 0 Example: <pre>libconfig-set NORFLASH.MULTICAST_ UPGRADE_PORT "11111"</pre>
NET_OPERATOR		Sets the value of the Network Operator code used to generate the Chinese Standard ID. Default: Example: <pre>libconfig-set NORFLASH.NET_OPERATOR "</pre>

Setting	Values	Description
NETMASK	Valid IP address.	Specifies the static netmask for the set-top box. This is the value used if DHCP is set to N (or if the set-top box cannot retrieve an IP address from the DHCP server). Default: Example: <pre>libconfig-set NORFLASH.NETMASK "255.255.0.0"</pre>
NTSC_SUBS	Y = Display DVB subtitles in NTSC mode. N = Do not display DVB subtitles in NTSC mode.	When in NTSC, configure whether to show DVB subtitles which are not normally supported in NTSC regions. Default: Example: <pre>libconfig-set NORFLASH.NTSC_SUBS "Y"</pre>
OUTPUT_RESOLUTION	HDNONE = Output resolution is defined by TVSYSTEM. HD480P59= 480p@59.94Hz. HD576P50= 576p@50Hz HD720P50= 720p@50Hz HD720P59= 720p@59.94Hz HD1080I50= 1080i@50Hz HD1080I59= 1080i@59.94Hz HDAUTO- Allows switching between SD and HD depending on whether an HDMI cable is connected or not.	Used to set the output video resolution. For HDAUTO - When an HDMI cable is connected, the preferred HD resolution (SETTINGS.PREF_HD_RESOLUTION) will be used if this is not set, 720P will be used. Default: 720p Example: <pre>libconfig-set NORFLASH.OUTPUT_ RESOLUTION "HD576P50"</pre> Note: Any analogue SD output is always defined by TVSYSTEM, regardless of the value of OUTPUT_RESOLUTION. HDNONE means that the HD-capable outputs are set to the TVSYSTEM defined mode. Also see " A130 Video Outputs " on page 140 for further information.

Setting	Values	Description
OUTFMT	CVBS-RGBOFF Composite CVBS-RGBON Composite + RGB LC-RGBOFF S-video LC-RGBON S-video + RGB CVBS-LC Composite + S-video CVBS-LBR Composite + Component LBR-CVBS-LC Component + Composite + S-video RGB-CVBS-LC Composite + S-video + RGB	Defines the output format of any standard definition output from the set-top box The output formats available depend on the set-top box and video cable or cables used. Default: Example: <pre>libconfig-set NORFLASH.OUTFMT "CVBS-RGBOFF"</pre> See Appendix E, "Video output formats" and "Overview of command options" on page 26 for further details.
PPP_PASSWORD	A maximum of 32 characters. Note: On a 103 board the maximum is 10 characters.	Configures the password to use in PPP builds. PPP builds only. Default: <pre>" "</pre> Example: <pre>libconfig-set NORFLASH.PPP_PASSWORD "MyPassword"</pre>
PPP_USERNAME	A maximum of 64 characters.	Configures the user name to use in PPP builds. PPP builds only. Default: <pre>" "</pre> Example: <pre>libconfig-set NORFLASH.PPP_USERNAME "MyUserName"</pre>
RECOVERY_UPGRADE_SERVER	A maximum of 48 characters	A string containing no more than 48 characters used to identify the recovery image upgrade server. Default: <pre>" "</pre> Example: <pre>libconfig-set NORFLASH.RECOVERY_UPGRADE_SERVER "upgrade.aminocom.com"</pre>

Setting	Values	Description
RFMOD_CHAN	Integer less than 128.	Sets the RF channel for boards that have an RF modulator. Default: "" Example: libconfig-set NORFLASH.RFMOD_CHAN "3"
RFMOD_ENABLE	Y=Enable the RF tuner. N=Disable the RF tuner.	Enables or disables the RF modulator for boards that have one. Default: Example: libconfig-set NORFLASH.RFMOD_ENABLE "Y"
RFMOD_FREQTABLE	BROADCAST CABLE	Configures whether the RF modulator uses cable or broadcast frequencies. Default: Example: libconfig-set NORFLASH.RFMOD_FREQTABLE "CABLE"
SCART_PIN8_OFF (Only for A110 and A125)	Y=Set pin8 OFF. N=Set pin8 ON.	Setting this to true ensures that SCART pin 8 will remain off at start-up. Default: . Example: libconfig-set NORFLASH.SCART_PIN8_OFF "Y"
SERIAL_ID		Configures the unique serial ID of the set-top box. Read-only, except in production builds. Default: The serial number of the box is the usual value. Example: libconfig-get NORFLASH.SERIAL_ID >C01008F000276
STB_ATTESTATION		Sets the value of the STB Attestation number used to generate the Chinese Standard ID. Default: Example: libconfig-set NORFLASH.STB_ATTESTATION " "

Setting	Values	Description
STB_PROVIDER		Sets the value of the STB Provider code used to generate the Chinese Standard ID. Default: Example: <pre>libconfig-set NORFLASH.STB_PROVIDER " "</pre>
SUBTITLES	Y=Display subtitles/closed captions N=Do not display subtitles/closed captions	Enable or disable the subtitle/closed caption display when playing video that contains subtitles/closed captions. Default: N Example: <pre>libconfig-set NORFLASH.SUBTITLES "Y"</pre>
TFTP_LOADFILE	Download script name.	Specifies a static name of the download script to use in TFTP upgrades. This allows for a static download script to be requested for downloading images from a TFTP server. This value will be used first, before making a DHCP request to try to obtain this information from a DHCP server The value must be a string with no more than 14 characters. Set with an empty string (" ") to disable the static entry and enable DHCP configuration to be used instead. Only used for systems that use the TFTP upgrade mechanism instead of multicast. Default: Example: <pre>libconfig-set LOADFILE "AMINET.txt"</pre>
TFTP_SERVER	Valid IP address.	Specifies a static TFTP server IP address. Only used for systems that use the TFTP upgrade mechanism instead of DHCP. Default: Example: <pre>libconfig-set NORFLASH.TFTP_SERVER "234.56.78.9"</pre>

Setting	Values	Description
TIME_SERVER	Valid IP address	Specifies the location of the time server for the set-top box to use. This is the value used if DHCP is set to N (or if the set-top box cannot retrieve an IP address from the DHCP server). Note: TIME_ZONE support in NOR Flash is deprecated and should not be used. Default: Example: <pre>libconfig-set NORFLASH.TIME_SERVER "234.56.78.9"</pre>
TIME_ZONE		a string, which contains a string in the format of sss+n or sss-n. Note: This implementation inverts the sign. So for a time zone of GMT plus 1 hour the string would be GMT-1. Default: Example: <pre>libconfig-set NORFLASH.TIME_ZONE "GMT+1"</pre> Time zone is GMT minus one hour (GMT=12:00, TZ = 11:00)
U_BOOT_OPTION	0 - Always run u-boot if there is a valid u-boot image available 1 - If there is a valid u-boot image, run it iff it is appropriately signed 2+ - Fall back to old behaviour: boot from NAND, multicast or tftp. Do not attempt to run u-boot.	Sets u-boot behaviour on the A130 platform. Default: Example: <pre>libconfig-set NORFLASH.U_BOOT_OPTION "1"</pre>

Setting	Values	Description
TVSYSTEM	PAL-B=Australia, Ghana. PAL-G=Europe. PAL-H=Belgium. PAL-I=UK. PAL-M=Brazil. PAL-N=South America. PAL-CN=Argentina. NTSC-J=Japan. NTSC-M=US.	Sets the TV system that the set-top box will operate in. Note: After the value has been altered the set-top box will need to be rebooted for the change to take effect. Default: Example: <pre>libconfig-set NORFLASH.TVSYSTEM "PAL-B"</pre>
USE_PPP	Y= use PPP. N=do not use PPP.	Enables or disables using Point-to-Point Protocol (PPP). Default: Example: <pre>libconfig-set NORFLASH.USE_PPP="Y"</pre>
VLAN	0=disables VLAN. 1=enable VLAN.	Enables or disables VLAN. If VLAN is enabled, you need to set VLAN_INTERNAL_ID and VLAN_EXTERNAL_ID with the network ports to use. Applies to the A110H and A130H only. Default: 0 Example: <pre>libconfig-set NORFLASH.VLAN "1"</pre>
VLAN_EXTERNAL_ID	>0	Specifies the VLAN ID of the external network port. AminET110H and AminET130H only. Default: Example: <pre>libconfig-set NORFLASH.VLAN_ EXTERNAL_ID "123"</pre>
VLAN_INTERNAL_ID	>0	Specifies the VLAN ID of the internal network port. Applies to the AminET110H and AminET130H only. Default: Example: <pre>libconfig-set NORFLASH.VLAN_ INTERNAL_ID "123"</pre>

A.1 A130 Video Outputs

The A130 has a primary and a secondary video interface. The primary can render the Video and the GFX planes, whilst the secondary only renders the Video (that is, no GFX).

A.1.1 OUTPUT_RESOLUTION

[OUTPUT_RESOLUTION](#) controls the primary output. If this is set to a HD resolution (720P, 1080i and so on) then the primary interface will feed the HDMI and/or HD-YUV outputs only. Only if it is set to `HDNONE`, or left undefined will the primary interface feed the HDMI, CVBS, SVDIO, YUV/RGB outputs at SD resolution.

The secondary interface is used if the primary interface is feeding HD outputs with HD content. In this case, the CVBS, SVIDEO and possibly (see below) RGB/YUV outputs will be fed from the secondary interface. Video will be seen on this output, but no GFX.

A.1.2 VIDEO DACS

The AmiNET130 contains 6 video Digital-Analogue Converters (DACs):

- 1 CVBS
- 2/3 SVideo
- 4/5/6 RGB/YUV

Regardless of the [OUTPUT_RESOLUTION](#) setting, CVBS/SVideo will be available, and HD will be available via HDMI. However if HD is set to be output as analogue component, this will use the YUV DACs, therefore SD YUV/RGB output from the secondary interface will not be available as the DACs used for this have been reassigned.

Appendix B—Settings file contents

The following table describes the settings available in the `settings` file. Settings are described in alphabetical order. Note that whether these values are used depends on the software and hardware build.

Default values listed here are used if no value is supplied. Default values are often build-specific though, so may not be as listed here.

The examples show how to enter the setting if you are using the command line facility. See [Chapter 6, "Set-top box configuration pages for Fresco and Opera 8.5"](#), [Chapter 7, "Set-top box configuration pages for Opera 9"](#) and [Appendix G, "Using the configuration techniques"](#) for information on how to enter values using other means.

Setting	Allowed values	Description
ANY_KEY_STANDBY_RECOVER	Y=Any key can be used to bring the STB out of standby. N=Only the power button can be used to bring the STB out of standby.	Sets which remote control keys can bring the set-top box out of standby. Use either Y, N or NULL. If the value has not been set, use the default value, N. Default: N Example: <pre>libconfig-set SETTINGS.ANY_KEY_STANDBY_RECOVER "Y"</pre>
AVSYNC_WAIT	Y=Enable wait. N=Disable wait.	Configures whether the channel changes wait for AV sync before displaying. The value can be overridden by settings in the URL. If the value has not been set, use the default value. Default: N Example: <pre>libconfig-set SETTINGS.AVSYNC_WAIT "Y"</pre>

Setting	Allowed values	Description
BROWSER_CONCEAL_STARTUP	Y=Conceal the Fresco startup sequence. N=Do not conceal the Fresco start up sequence.	Sets whether the Fresco browser's start-up sequence is concealed or displayed on the screen. The first web page must turn the updates back on again in order to display anything on screen. Fresco browser only. Default: N Example: <pre>libconfig-set SETTINGS.BROWSER_CONCEAL_STARTUP "Y"</pre>
BROWSER_ENABLECOOKIES	Y=Enable cookies N=Disable cookies.	Enables or disables cookies. This setting cannot be accessed via libconfig. Default: Y Example: <pre>libconfig-set SETTINGS.BROWSER_ENABLECOOKIES "N"</pre>
BROWSER_HELPPAGE	URL	Sets the help page. This is the URL for the page that the browser goes to when the Help key is pressed. Default: Example: <pre>libconfig-set SETTINGS.BROWSER_HELPPAGE "http://www.aminocom.com/help"</pre>
BROWSER_HOMEPAGE	URL	Sets the home page. This is the URL for the page that the browser goes to when the Home key is pressed and when the set-top box has booted successfully. Default: <pre>about:/start.htm</pre> Example: <pre>libconfig-set SETTINGS.BROWSER_HOMEPAGE "http://www.aminocom.com"</pre>
BROWSER_MARGIN_COLOUR		Sets the browser margin colour. The value must be a string containing TCR or a numerical hex RGB value (0xRRGGBB). Default: Example: <pre>libconfig-set SETTINGS.BROWSER_MARGIN_COLOUR "0x00ff00"</pre>

Setting	Allowed values	Description
BROWSER_MARGIN_LEFT BROWSER_MARGIN_RIGHT BROWSER_MARGIN_TOP BROWSER_MARGIN_BOTTOM	1 - 100	Sets the browser margins as a percentage (%) of the graphics plane size. Can also be a pixel value, suffixed by <code>px</code> on Opera Gogi. Should be defined as <code>px</code> (pixels) or <code>%</code> (percentage). Will not work without being defined. Valid values are 0 to 100 (for <code>%</code>) or to the display width/height for <code>px</code>. Note: Setting these values to 100 would set the margins to cover the entire graphics plane. Default: Example: <pre>libconfig-set SETTINGS.BROWSER_ MARGIN_LEFT "20"</pre>
BROWSER_RETRY	Y=Automatically reload page. N=Display error	Sets whether a page is automatically reloaded when the browser fails to load, or whether an error is displayed instead. Note: Fresco browser only. This setting cannot be accessed via <code>libconfig</code>. Default: Example: <pre>libconfig-set SETTINGS.BROWSER_ RETRY "Y"</pre>
BROWSER_TRANSPARENCY	N, OFF, 0 or Y, ON, 1	This configures whether the browser controls the transparency of pixels it draws. When disabled (the default setting) all pixels are opaque, except those matching the current key colour which are transparent. When enabled, transparency is controlled by the browser and can be set by HTML/CSS. In this state the key colour is ignored and has no effect. Support for this option is dependent on the browser. This is only supported by Opera Gogi when configured for a 32bpp frame buffer. Default: N Example: <pre>libconfig-set SETTINGS.BROWSER_ TRANSPARENCY "Y"</pre>

Setting	Allowed values	Description
BROWSER_UNLOAD_VIDEO	Y=Always stop video. N=Never stop video.	Sets the default for whether video is stopped when the page changes. The setting can be overwritten on a per page basis by the HTML page. This setting cannot be accessed via libconfig. Default: Y Example: libconfig-set SETTINGS.BROWSER_UNLOAD_VIDEO "N"
CC_OUTPUT_SOFTCC	Y=Enable Software rendered closed captions. N=Disable software rendered closed captions.	Sets whether software rendered closed captions are enabled. Default: Y Example: libconfig-set NORFLASH.CC_OUTPUT_SOFTCC "Y"
CC_OUTPUT_VBI	Y=Enable VBI closed captions. N=Disable VBI closed captions.	Sets whether VBI closed captions are enabled. Default: Y Example: libconfig-set NORFLASH.CC_OUTPUT_VBI "Y"
CC_PREFERENCE	ASTC = The closed captions will use ATSC encapsulation. SCTE = The closed captions will use SCTE encapsulation.	Sets which closed captions encapsulation should be used. If left blank, closed captions will use the ATSC encapsulation Default: ASTC Example: libconfig-set SETTINGS.CC_PREFERENCE "ASTC"
CLOSED_CAPTION_SWAPPED (A103, 110, 110H and 500 only)	Y=Enable support for closed caption type with reordered data. N=Keep using the default closed caption type.	Sets whether support for closed caption type with reordered data is enabled or disabled (if disabled, the default closed caption type is used). Default: N Example: libconfig-set SETTINGS.CLOSED_CAPTION_SWAPPED "Y"

Setting	Allowed values	Description
DEFAULT_VOLUME	0 - 100	Sets the default volume that the set-top box uses when it boots. This must be between MINIMUM_VOLUME and MAXIMUM_VOLUME. That is, 0 – 100. You are recommended not to change the value from the default. Default: 100 Example: <pre>libconfig-set SETTINGS.DEFAULT_VOLUME "80"</pre>
DELAY_FACTOR	1=16cs delay. 2=32cs delay. 3=64cs delay. 4=96cs delay.	Sets the length of time that necessary for a user to hold a key down on an IR input device (e.g. the keyboard) in order to make it repeat. Default: 2 Example: <pre>libconfig-set SETTINGS.DELAY_FACTOR "1"</pre>
DISABLE_ERR_BOX Fresco browser only.	Y=Do not display an error box when the page fails to load. N=Display an error box when the page fails to load.	Sets whether an error box is displayed if a page fails to load. Fresco browser only. This setting cannot be accessed via libconfig. Default: N Example: <pre>libconfig-set SETTINGS.DISABLE_ERR_BOX "Y"</pre>

Setting	Allowed values	Description
DISPLAY_MODE	<code>panscan</code> 4:3 aspect ratio in pan and scan presentation mode. <code>letterbox</code> 4:3 aspect ratio in letterbox presentation mode. <code>widescreen</code> 16:9 aspect ratio. <code>ignore</code> 4:3 aspect ratio stretched to 16:9	Configures how the video is formatted for the TV. Select <code>panscan</code> for televisions which do not have automatic aspect ratio switching, and where you want the video image to fill the full 4:3 screen. In this mode, 4:3 content fits the screen correctly, and any 16:9 video content is cropped on the left and right sides. Select <code>letterbox</code> for televisions which do not have automatic aspect ratio switching, and where you want to display the full 16:9 content. In this mode, 4:3 content fits the screen correctly, and any 16:9 content is displayed in full, with black bars above and below it. Select <code>widescreen</code> for televisions which have automatic ratio switching. In this mode, the television switches between 4:3 and 16:9 depending on the video content, and full content is displayed for both. Select <code>ignore</code> to stretch a 4:3 aspect ratio image to the equivalent of 16:9 ratio. This may be used, for example, when stretching a 4:3 ratio image to fill the screen of a wide screen television. The image will appear somewhat distorted. Select <code>ignore</code> to ignore the aspect ratio of the video, and assume that it is the same as the ratio of the output. So on 16:9 display, a 4:3 image will appear vertically distorted. On a 4:3 display, a 16:9 image will appear vertically distorted. Refer to <i>Amino Technical Note 018 "Aspect Ratio Handling"</i> and the <i>Amino TV Standards Guide</i> for more information on aspect ratios. Default: <code>panscan</code> Example: <pre>libconfig-set SETTINGS.DISPLAY_MODE "widescreen"</pre>
DOLBY_RF	0=Line mode. 1=RF mode.	Sets the Dolby dynamic range control. Line mode is light compressions and RF is heavy compression. Default: 0 Example: <pre>libconfig-set SETTINGS.DOLBY_RF "1"</pre>

Setting	Allowed values	Description
ENABLE_NDS_AUTH	Y=Register the algorithm. N=Do not register the algorithm.	Sets whether the NDS authentication digest algorithm should be registered. NDS builds only. This setting cannot be accessed via libconfig. Default: Example: <pre>libconfig-set SETTINGS.ENABLE_NDS_AUTH "Y"</pre>
ENABLE_TRUSTED_DOMAINS	Y=Any page that uses JMACX and / or Macrovision calls must be checked against the list of known trusted hosts. N=Execute JMACX and/or Macrovision calls to any web page.	Enable or disable the use of trusted domains. If the use of trusted domains is enabled, pages that use JavaScript or Macrovision are checked against the list of trusted hosts. If trusted domains are disabled, then JavaScript and Macrovision calls may be executed from any web page. Default: N Example: <pre>libconfig-set SETTINGS.ENABLE_TRUSTED_DOMAINS "Y"</pre>
EOS_KILLS_VIDEO	Y=Kill video on event (default operation if not specified). N=Do not kill video on event.	Used to set whether video is automatically killed on receipt of the RTSP ANNOUNCE end-of-stream (EOS) event. Default: Y Example: <pre>libconfig-set SETTINGS.EOS_KILLS_VIDEO "N"</pre>
FULLSCREEN	Y=Full screen. N=Not full screen.	Enables or disables full screen mode. In full screen mode, the browser window is set to 100% of the video plane. In non-full-screen mode, the browser window is set to 90% (safe area), so that the entire window will be visible on all televisions. Note: This setting is obsolete. It is recommended to set this to 'Y' and control the size of the browser window by using the BROWSER_MARGIN_ settings. Default: N Example: <pre>libconfig-set SETTINGS.FULLSCREEN "Y"</pre>

Setting	Allowed values	Description
GFX_RESOLUTION	nnnnXmmmm= Defines the resolution as nnnn pixels wide by mmmm pixels high. PAL=equivalent to 720x576. NTSC=equivalent to 720x480. HD720=equivalent to 1280x720.	GFX_RESOLUTION defines the resolution at which the GFX plane is rendered. This can cause confusion, as even when it is set to an SD resolution, if a HD output is being used, no graphics will be seen on the SD outputs. This is because the secondary interface is feeding the SD outputs, which does not render the GFX plane. The range of supported values will be platform-dependent and thus may be affected by the current NORFLASH.OUTPUT_RESOLUTION setting. Default: Example: <pre>libconfig-set SETTINGS.GFX_RESOLUTION "PAL"</pre>
H264_VIDEO_DELAY	1 to 16	There are various factors that affect the channel change times for IGMP streams. Following a channel change, if the picture from a stream with progressive I-frames is displayed too soon it will tile up on the display, causing channel change artefacts. To counteract this, a video display channel join delay value is applied which delays the display of the picture, at the expense of perceived channel change time. Different values are applied to MPEG-2 and H264 streams. The current default values of these are 2 for MPEG-2 and 8 for H264, however these are configurable so that the channel change performance of the STB can be optimised. Reducing the values will reduce the channel change time but may cause channel change artefacts with certain streams. Setting the value to 0 will cause the STB to use the hardcoded default value. Default: 8 Example: <pre>libconfig-set SETTINGS.H264_VIDEO_DELAY "2"</pre>

Setting	Allowed values	Description
H264_VIDEO_TP_DELAY	1 to 16	There are various factors that affect the channel change times for IGMP streams. Following a channel change, if the picture from a stream with progressive I-frames is displayed too soon it will macroblock on the display, causing channel change artefacts. To counteract this, a video display channel join delay value is applied which delays the display of the picture, at the expense of perceived channel change time. Different values are applied to MPEG-2 and H264 streams. The current default values of these are 2 for MPEG-2 and 8 for H264, however these are configurable so that the channel change performance of the STB can be optimised. Reducing the values will reduce the channel change time but may cause channel change artefacts with certain streams. Setting the value to 0 will cause the STB to use the hardcoded default value. Default: 8 Example: <pre>libconfig-set SETTINGS.H264_VIDEO_TP_DELAY "2"</pre>
HDMI_AUDIO_FORMAT	0 = Auto 1 = PCM 2 = SPDIF (Mirror SPDIF output bitstream)	The tag to use when reading or writing the HDMI audio bitstream format option to the settings file. Default: Example: <pre>libconfig-set SETTINGS.HDMI_AUDIO_FORMAT "1"</pre>
HTTP_PROXY		Sets the proxy server for HTTP transactions. Enter the IP address and port in the format <code>host:port</code>, for example: <code>123.4.5.67:1234</code>, or the address can be given in the form <code>host-name.domain:1234</code> Opera browser only. Default: Example: <pre>libconfig-set SETTINGS.HTTP_PROXY "123.4.5.67:1234"</pre>

Setting	Allowed values	Description
HTTP_PROXY_IGNORE	0= Do not ignore the HTTP proxy. 1=Ignore the HTTP proxy.	Configure a flag to ignore the current HTTP proxy setting. Opera browser only. Default: 0 Example: <pre>libconfig-set SETTINGS.HTTP_PROXY_IGNORE "1"</pre>
HTTPS_PROXY		Configure the proxy server for HTTPS transactions. Enter the IP address and port in the format host:port, for example: 123.4.5.67:1234 Opera browser only. Default: Example: <pre>libconfig-set SETTINGS.HTTPS_PROXY "123.4.5.67:1234"</pre>
IGMP_END_TIMEOUT	0 - 30	Sets the number of seconds (within the range 0 to 30) to wait when the video has been playing and no video data is seen. If the wait for more data extends past the timeout, the video playback is killed by the STB. Set to 0 = Do not timeout. Default: 30 Example: <pre>libconfig-set SETTINGS.IGMP_END_TIMEOUT "15"</pre>
IGMP_START_TIMEOUT	0 - 30	Sets the number of seconds (within the range 0 to 30) to wait for the video to start after a play command has been sent. If no video is seen before the time-out, the video playback is killed by the STB. Set to 0 = Do not timeout. Default: 30 Example: <pre>libconfig-set SETTINGS.IGMP_START_TIMEOUT "15"</pre>

Setting	Allowed values	Description
IGMP_RETUNE_AFTER_TIME		Sets the timeout before the IGMP retune event occurs on a stream (in centi-seconds). If the same IGMP channel is viewed for this period of time, the video decoder will be reset automatically. (Values less than 360000 (1 hour) or more than 259200000 (one month) would be considered unrealistic.) Used on the A125 but not the ST platform. Default: 3 Example: <pre>libconfig-set SETTINGS.IGMP_RETUNE_AFTER_TIME "200000000"</pre>
IME	en=English. en_US=American English. el=Greek. ge=German. ru=Russian. sl=Slovenian. " " reset to automatic.	Specifies which built-in IME (input method editor) language to use, specified using ISO 639-2 notification. Note: Changes require a browser restart or a set-top box reboot in order to take effect. By default no IME is enabled. Default: Example: <pre>libconfig-set SETTINGS.IME "ru"</pre>
INITIAL_LED	ON=LED is on when the box is in normal powered up state. OFF=LED is off when the box is in normal powered up state.	Sets the initial state of the main/IR LED, when the set-top box is active (i.e. powered and not in standby) For a description of the LED configuration for different STBs see "LED Configuration operation vs STB product" on page 167. Default: Example: <pre>libconfig-set SETTINGS.INITIAL_LED "ON"</pre>

Setting	Allowed values	Description
IR_BRAND	0 - 15	Defines the prefix expected within the IR signal sent by a remote control in order to pair the remote with a particular set top box. This can be useful in lab/demo environments when multiple set top boxes may receive the signal from a remote control. See Appendix I, "Pairing an IR remote control with a set-top box" for details of how to pair a remote control with a set-top box. Default: Example: <pre>libconfig-set SETTINGS.IR_BRAND "10"</pre>
KEYMAP	us=US uk=UK el=Greek ge=German ru=Russian sl=Slovenian	Sets the layout for the keyboard. Language specified in ISO-639 notation. Default: Example: <pre>libconfig-set SETTINGS.KEYMAP "us"</pre>
LEGACY_SUBS	Y=Use old behaviour. N=Use new behaviour.	The new behaviour is defined as having subtitles displayed on a second framebuffer on top of the browser graphics. This means that the STB can display subtitles and browser graphics at the same time. The old behaviour is defined as displaying either browser graphics or subtitles. Default: N Example: <pre>libconfig-set SETTINGS.LEGACY_SUBS "Y"</pre>
LINKSTATE_FAIL_THRESHOLD		The number of failed linkstate checks before an action specified by the linkstate watchdog tool is executed (e.g. a reboot). Setting this to zero disables the linkstate watchdog. Default: 10 Example: <pre>libconfig-set SETTINGS.LINKSTATE_FAIL_THRESHOLD "3"</pre>

Setting	Allowed values	Description
LINKSTATE_TIMEOUT		The time in seconds between linkstate checks. Setting this to zero disables the linkstate watchdog tool. Default: 60 Example: <pre>libconfig-set SETTINGS.LINKSTATE_TIMEOUT "10"</pre>
MANAGEMENT_PREFIX	file://etc works on Opera builds. file://opt/htdocs works on Fresco builds. http://<web-server>/<pages> will load rebooting.html and upgrading.html from a remote server location.	Specifies where STBremoteconf should look for management pages (rebooting.html and upgrading.html). Certain browser builds restrict access to the /etc directory, so making a call to STBremoteconf to reboot the STB, which will try to display the rebooting.html page, may not work. The prefix allows STBremoteconf to know if it should read management pages directly from /etc or somewhere else. Default: file://etc Example: <pre>libconfig-set SETTINGS.MANAGEMENT_PREFIX "file://opt/htdocs"</pre>
MAXIMUM_VOLUME	0 - 100	Sets the maximum volume. Default: 100 Example: <pre>libconfig-set SETTINGS.MAXIMUM_VOLUME "100"</pre>

Setting	Allowed values	Description
MAX_PCR_PTS_BUFFERING (A125 only)	0 or between 60000 - 540000	The value of the variable n is an integer which can be 0 or between 60000 and 540000. n is the maximum time buffering allowed in terms of PCR-PTS. It is expressed in 90kHz units, so 90000 = 1s. Recommended values to test are in the range 1-5s (90000 to 450000). Note: After the setting the box has to be rebooted to allow the value to be effective. The setting is not normally preserved by upgrade. Default: n = 0 means no maximum buffering time set (default). Example: <pre>libconfig-set SETTINGS.MAX_PCR_PTS_BUFFERING "90000"</pre> or <pre>libconfig-set SETTINGS.MAX_PCR_PTS_BUFFERING "0"</pre>
MIDWARE_KEY_IDLE_TIMEOUT	0 - 32768	This is the length of time in centi-seconds allowed between keypresses before deciding that the input sequence has completed. For example, Browser OSD for channel changing, or phone number entry, IME use, and so on. Set to 0 = Do not timeout. Default: 2000 Example: <pre>libconfig-set SETTINGS.MIDWARE_KEY_IDLE_TIMEOUT "250"</pre>
MINIMUM_VOLUME	0 - 100	Sets the minimum volume. Default: 0 Example: <pre>libconfig-set SETTINGS.MINIMUM_VOLUME "20"</pre>

Setting	Allowed values	Description
MPEG2_VIDEO_DELAY (HD products only)	1 to 16	There are various factors that affect the channel change times for IGMP streams. Following a channel change, if the picture from a stream with progressive I-frames is displayed too soon it will tile up on the display, causing channel change artefacts. To counteract this, a video display channel join delay value is applied which delays the display of the picture, at the expense of perceived channel change time. Different values are applied to MPEG-2 and H264 streams. The current default values of these are 2 for MPEG-2 and 8 for H264, however these are configurable so that the channel change performance of the STB can be optimised. Reducing the values will reduce the channel change time but may cause channel change artefacts with certain streams. Setting the value to 0 will cause the STB to use the hardcoded default value. Default: 2 Example: <pre>libconfig-set SETTINGS.MPEG2_VIDEO_DELAY "2"</pre>
MPEG2_VIDEO_TP_DELAY (HD products only)	1 to 16	There are various factors that affect the channel change times for IGMP streams. Following a channel change, if the picture from a stream with progressive I-frames is displayed too soon it will tile up on the display, causing channel change artefacts. To counteract this, a video display channel join delay value is applied which delays the display of the picture, at the expense of perceived channel change time. Different values are applied to MPEG-2 and H264 streams. The current default values of these are 2 for MPEG-2 and 8 for H264, however these are configurable so that the channel change performance of the STB can be optimised. Reducing the values will reduce the channel change time but may cause channel change artefacts with certain streams. Setting the value to 0 will cause the STB to use the hardcoded default value. Default: 6 Example: <pre>libconfig-set SETTINGS.MPEG2_VIDEO_TP_DELAY "2"</pre>

Setting	Allowed values	Description
NATIVE_FRAMERATE_PASSTHRU_ENABLE (A130, 130H, 130M, 530 only) (HD products only)	Y=Enable native framerate passthrough. N=Disable native framerate passthrough.	When this is set the framerate of the video output will be set to match the framerate of the video being played, temporarily overriding the user preference setting, if this is different. Default: Example: <pre>libconfig-set SETTINGS.NATIVE_FRAMERATE_PASSTHRU_ENABLE "N"</pre>
NATIVE_PASSTHRU_ENABLE (A130, 130H, 130M, 530 only) (HD products only)	Y=Enable native passthrough. N=Disable native passthrough.	Used to enable temporary switching of output resolution to SD when playing SD video, when the output resolution is set to HD. Default: Example: <pre>libconfig-set SETTINGS.NATIVE_PASSTHRU_ENABLE "N"</pre>
NTPCLIENT_TIMEOUT		Sets the NTP client timeout in seconds. Default: Example: <pre>libconfig-set SETTINGS.NTPCLIENT_TIMEOUT "10"</pre>
ONSCREEN_KBD_RAISE	1 - 80	Used to set which remote control button will raise the on-screen keyboard. Valid values are in the range 1 - 80. Default: Example: (to set the blue button) <pre>libconfig-set SETTINGS.ONSCREEN_KBD_RAISE "23"</pre>
OPERA_HTTP_AUTHENTICATION_DOMAINS		A list of domains that allow NDS authentication separated by space, or NULL if no list has been defined. Opera browser only. This setting cannot be accessed via libconfig. Default: Example: <pre>libconfig-set SETTINGS.OPERA_HTTP_AUTHENTICATION_DOMAINS "aminocom.com nds.com"</pre>

Setting	Allowed values	Description
POD_SENSITIVITY	0 - 10	The remote sends a signal every 10 centiseconds, this setting configures how many signals are required before the mouse moves. Hence a setting of 2 will indicate that two signals need to be received before the mouse moves. Default: Example: <pre>libconfig-set SETTINGS.POD_ SENSITIVITY "5"</pre>
PREF_HD_RESOLUTION	576P – PAL 480p – NTSC 720P 1080I	Used to store the preferred output resolution to switch to when automatic output resolution is enabled. (when the NORFLASH. OUTPUT_RESOLUTION setting is unset or is set to HDAUTO) Default: 720P Example: <pre>libconfig-set NORFLASH.PREF_HD_ RESOLUTION "576p"</pre>
PREFERRED_LANG	ISO 639-2 language code	Sets the preferred audio language from a video stream. Set to "" for automatic language selection. Default: None Example: <pre>libconfig-set SETTINGS.PREFERRED_ LANG "fr"</pre>
PREFILL_DECODER_BUFFERS (A103, 110, 110H and 500 only)	Y=Prefill the buffer. N=Do not prefill the buffer.	Configures whether the video buffer is prefilled before video is played. This setting cannot be accessed via libconfig. Default: N Example: <pre>libconfig-set SETTINGS.PREFILL_ DECODER_BUFFERS "Y"</pre>
RCIME_DEFLANG	ISO 639-2 language code	Default language for the remote control IME. Default: None. Example: <pre>libconfig-set SETTINGS.RCIME_ DEFLANG "fr"</pre>

Setting	Allowed values	Description
RCIME_DEFMODE	uppercase= treat remote number keys as upper case characters. lowercase= treat remote number keys as lower case char- acters. numerics= treat remote number keys as numbers.	Remote control IME default mode. Default: lowercase Example: libconfig-set SETTINGS.RCIME_ DEFMODE "numerics"
RCIME_TIMEOUT	1 - 999	Used to configure the timeout for a keypress when using Remote Control IME mode (Fresco IME builds only). Default: 999 Example: libconfig-set SETTINGS.RCIME_ TIMEOUT "30"
REMOTE_LAYOUT	Default Hospitality Myrio Think TotalVision VillaFontaine Guide GuestTek AminoTV Guide231 GETC Sejinalt Myrio2think	Sets the default IR remote control layout. Different remote layouts specify how certain keys on the remote control are interpreted. Customer-specific layout values also exist. See Remote layout options for further information. See Volume control for details of controlling the volume using the IR remote. Default: NULL Example: libconfig-set SETTINGS.REMOTE_ LAYOUT "Hospitality"
REMOTECNF	IP address	Sets the multicast IP address that the set-top box listens on for STBremoteconf commands. Default: 225.10.10.10 Example: libconfig-set SETTINGS.REMOTECNF "234.56.78.9"

Setting	Allowed values	Description
REMOTECONFPORT	0 - 65535	Sets the multicast port that the set-top box listens on for STBremoteconf commands. Default: 22222 Example: <pre>libconfig-set SETTINGS.REMOTECONF PORT "12345"</pre>
REPEAT_RATE	0=Do not repeat any keys 1 - 30 repeat rate (in cs)	Sets the key repeat rate in centiseconds, to control the number of characters per second that a user can enter via an IR input device (e.g. the keyboard). "0" indicates no key repeat. Default: 8 Example: <pre>libconfig-set SETTINGS.REPEAT_ RATE "0"</pre>
RFBOOST_DOLBY	Y=Enable Dolby boosting. N=Disable Dolby boosting.	Sets whether Dolby audio level boosting is enabled or disabled on the A110-BGA only. Default: N Example: <pre>libconfig-set SETTINGS.RFBOOST_ DOLBY "Y"</pre>
RFBOOST_MPEG	Y=Enable RF audio level boosting. N=Disable RF audio level boosting.	Sets whether RF audio level boosting is enabled or disabled on the A110-BGA only. Default: N Example: <pre>libconfig-set SETTINGS.RFBOOST_ MPEG "Y"</pre>
RTSP_BASE_PORT	1 - 65535	Sets the initial RTSP UDP video port number the set-top box is to use. By default, the set-top box starts at 11111 and increases in increments of 10. Default: 554 Example: <pre>libconfig-set SETTINGS.RTSP_ BASE_PORT "1234"</pre>

Setting	Allowed values	Description
RTSP_DESTINATION	Y=Include the destination option. N=Do not include the destination option.	Sets whether to include the destination option in RTSP Transport request headers. If Y, the RTSP setup will contain the destination=<local IP address>. Set the value to N to work with a NAT router. If set to N it will remove this destination= option from the header and the RTSP server will reply to the source IP address. If the STB is behind a NAT router then the source IP address will be the NAT server and it will be routed. Default: Y Example: <pre>libconfig-set SETTINGS.RTSP_DESTINATION "Y"</pre>
RTSP_END_TIMEOUT	0 - 30	Sets the number of seconds before an end-of-media event is raised for RTSP video. Set 0 for never timeout. Default: 6 Example: <pre>libconfig-set SETTINGS.RTSP_END_TIMEOUT "15"</pre>
RTSP_PING_TIMEOUT	0 - 30	Sets the default RTSP server ping timeout to use When undefined or defined as 0, a default value will be used for the RTSP ping timeout. Default: 15 Example: <pre>libconfig-set SETTINGS.RTSP_PING_TIMEOUT "15"</pre>
RTSP_SCALE	1 - 6	The default fast forward and rewind multiplier. A scale of 2.0 will present the stream such that you move forward through the stream twice as fast. RTSP speed gives the whole data stream at that speed. A 4Mbit/s stream at a scale of 2.0 gives the whole stream at 8Mbit/s. Default: 1 Example: <pre>libconfig-set SETTINGS.RTSP_SCALE "2"</pre>

Setting	Allowed values	Description
RTSP_SERVER	ncube mediabase oracle concurrent bitband infovalue seachange eona smartvision	Sets the default video server type. Default: ncube Example: libconfig-set SETTINGS.RTSP_SERVER "mediabase"
RTSP_START_TIMEOUT	0 - 30	Sets the number of seconds before a no-video event is raised for RTSP video. Set to 0 = Do not timeout. Default: 4 Example: libconfig-set SETTINGS.RTSP_START_TIMEOUT "15"
SECONDARY_LANG	ISO 639-2 language code	The secondary audio language from a video stream selection. Set "" for automatic language selection. Default Example: libconfig-set SETTINGS.SECONDARY_LANG "fr"
STANDBY_LED	ON=On in standby state. OFF=Off in standby state.	Sets the state of the standby LED when the set-top box is in standby. For a description of the LED configuration for different STBs see "LED Configuration operation vs STB product" on page 167 . Default: Example: libconfig-set SETTINGS.STANDBY_LED "OFF"
STBRCPOR	0 - 65535	Sets the unicast port that the STBremoteconf daemon listens on for STBremoteconf commands. Default: 22222 Example: libconfig-set SETTINGS.STBRCPOR "12345"

Setting	Allowed values	Description
STC_OFFSET (HD products only)	-10000 to -40000	The System Time Clock (STC) offset is the value in 90KHz ticks by which the STC is offset from the Programme Clock Reference (PCR). The offset determines the size of the data buffer which needs to be set so as to avoid data underrun or overrun as the result of network jitter. The STC offset has a consequential effect on the channel change time; the shorter the offset the shorter the channel change time. However this must be balanced against the possibility of data underrun as the result of a smaller buffer. The current STC offset value is -10000 and this is now configurable. The channel change time can be reduced by approximately 100ms for every STC offset decrease of 10000, however the offset should not be smaller than -10000. Default: -10000 Example: <pre>libconfig-set SETTINGS.STC_OFFSET "-10000"</pre>
SUBTITLES_OPTION	Y=Turn subtitles on. 1=Turn subtitles on. N=Turn subtitles off. 0=Turn subtitles off. H=Turn on subtitles for the hearing impaired (dependant on build).	Sets the mode of the subtitles. Default: N Example: <pre>libconfig-set SETTINGS.SUBTITLES_ OPTION "H"</pre>
SUBTITLES_PREF_LANG	ISO 639-2 language code.	Sets the primary language for default subtitle display. Set "" for automatic language selection. Default: Example: <pre>libconfig-set SETTINGS.SUBTITLES_ PREF_LANG "fr"</pre>

Setting	Allowed values	Description
SUBTITLES_SECOND_LANG	ISO 639-2 language code.	Sets the secondary language for default subtitle display. Set "" for automatic language selection. Default: Example: <pre>libconfig-set SETTINGS.SUBTITLES_SECOND_LANG "fr"</pre>
TELETEXT_FULLSCREEN	Y=enable full screen operation. N=disable full screen operation.	Enables or disables teletext full screen operation. (Opera subtitle builds only.) Default: Y Example: <pre>libconfig-set SETTINGS.TELETEXT_FULLSCREEN "N"</pre>
TEXT_ENTRY	1=Enable text entry. 0=Disable text entry.	Enables or disables remote text entry via the remote control. If text entry is enabled, the user enters text by holding down the appropriate number key. Default: Example: <pre>libconfig-set SETTINGS.TEXT_ENTRY "1"</pre>
TOOLBAR_STATE	1=Toolbar is visible. 0=Toolbar is not visible.	Sets the default for whether the browser's toolbar is visible or not when the set-top box boots. This can be overridden by settings for individual pages. Default: 1 Example: <pre>libconfig-set SETTINGS.TOOLBAR_STATE "1"</pre>
TVI_TYPE	0=Philips 1=Zenith 2=LG 3=Mate (Sony/Panasonic) 4=TVLink 5=Generic	Configures which TV type the TVI interface needs to use on the programmable interface controller (PIC). Hospitality platforms only. Default: Example: <pre>libconfig-set SETTINGS.TVI_TYPE "0"</pre>

Setting	Allowed values	Description
UDP_END_TIMEOUT	0 – 30	This configures how long to wait for the video to start when video has been playing and no video data is seen. If no video is seen before the timeout (in seconds) then the video playback is killed by the STB. Set to 0 = Do not timeout. Default: Example: <pre>libconfig-set SETTINGS.UDP_END_TIMEOUT "15"</pre>
UDP_START_TIMEOUT	0 – 30	This configures how long to wait for the video to start after a play command has been sent. If no video is seen before the timeout (in seconds) then the video playback is killed by the STB. Set to 0 = Do not timeout. Default: Example: <pre>libconfig-set SETTINGS.UDP_START_TIMEOUT "15"</pre>
UI_LANG	ISO 639 language code.	Sets the IME UI language to use. Default: Example: <pre>libconfig-set SETTINGS.UI_LANG "fr"</pre>
USB_SPEED	""=Use autodetection. lowspeed=1.5 Mbits/s (USB 1). fullspeed=12 Mbits/s (USB 1). highspeed=480 Mbits/s (USB 2 only).	Configures whether the USB interface should auto-negotiate a speed with a client (default) or whether it should be limited to a particular speed. Note: For the Tira dongle, this must be set to lowspeed. If you are setting this via libconfig, you will need to reboot the set-top box in order for the setting to take effect. Default: "" Example: <pre>libconfig-set SETTINGS.USB_SPEED "lowspeed"</pre>

Setting	Allowed values	Description
USB_TIMEOUT		Configures the number of timeouts needed to trigger a set-top box reboot. Default: "" Example: <pre>libconfig-set SETTINGS.USB_TIMEOUT "3"</pre>
USE_PROXY	Y=Enable HTTP proxy. N=Disable HTTP proxy.	Enables or disables the use of HTTP, HTTPs and FTP proxy servers. Opera browser only. For Fresco, this is set in the browser's settings file. Default: N Example: <pre>libconfig-set SETTINGS.USE_PROXY "Y"</pre>
USER_AGENT_STRING	A string of up to 60 characters in length.	Appends a 60 character ASCII string to the user agent string. This feature can be cleared by setting an empty string. Note: Making this change will require the STB to be rebooted for the change to take effect. Default: Example: <pre>libconfig-set SETTINGS.USER_AGENT_STRING "Aminotech"</pre>

B.1 Remote layout options

These are the options for `libconfig-set SETTINGS.REMOTE_LAYOUT`.

Layout	Description
Default	The normal layout as used by default on the 110.
Hospitality	As the default layout but with the following changes: - CH_UP/CH_DOWN and number buttons become TVPOWER. - TVPOWER/STB become HOME. - VID_PLAY becomes VID_PLAYPAUSE. This is the default setting on the 110H
Think	Default setting for all Amino Minerva builds.
Totalvision	As default with the following changes: - CH_UP/CH_DOWN become TVPOWER - TVPOWER/STB become HOME - RED becomes VID_REVERSE - GREEN becomes VID_PLAYPAUSE - YELLOW becomes VID_STOP - BLUE becomes VID_FORWARD
Villafontaine	As the default layout with the following changes: - CH_UP/CH_DOWN become TVPOWER - TVPOWER/STB become HOME
Myrio	To operate the STB using a Myrio remote control.
Guide	As the default layout but maps the <code>-/--</code> to be an EPG key
GuestTek	Affects Sejin keyboard remote only in the following ways: - Right mouse button will send a <code>CIR_BTN_RIGHT_MOUSE</code> key press regardless of the mouse being hidden or not. - Bookmarks becomes Vol+ . - Help becomes Vol-. - Toolbar becomes CH+ . - Ins becomes CH-. - Del becomes power.
AminoTV	This is used to provide volume control within the STB rather than controlling the TV directly. As well as using this setting, a European remote control set to TV brand code 231 is required. Volume control is limited to attenuation as there is no audio amplifier present on the hardware. The effective range of the volume control is between 90 and 100 since values < 90 result in no audio being detectable.
Guide231	A combination of Guide and AminoTV described above
CETC	Default setting for all CETC builds.
Sejinalt	Alternative Sejin remotes provided by Koolconnect.
Myrio2think	Used for Myrio UEI Sejin remotes to map keys to Minerva think codes.

B.2 LED Configuration operation vs STB product

`SETTINGS.STANDBY_LED` value has no effect on LEDs when the STB is in "active" mode. It only has effect when STB is in "standby" mode. `SETTINGS.INITIAL_LED` value has no effect on LEDs when the STB is in "standby" mode. It only has effect when STB is in "active" mode.

B.2.1 STB in ACTIVE mode

STB	SETTINGS.INITIAL_LED value		
	unset or ""	"on"	"off"
Single LED STBs*	ON	ON	OFF
A500	Main LED ON	Main LED ON	Main LED OFF
A530	Main LED OFF Standby LED GREEN	Main LED ON Standby LED GREEN	Main LED OFF Standby LED GREEN

* single LED STBs are: A103, A110, A110H, A125, A130, A130H and A130M

B.2.2 STB in STANDBY mode

STB	SETTINGS.STANDBY_LED value		
	unset or ""	"on"	"off"
Single LED STBs*	OFF	ON	OFF
A500	Main LED OFF	Main LED ON	Main LED OFF
A530	Main LED OFF Standby LED RED	Main LED OFF Standby LED RED	Main LED OFF Standby LED RED

* single LED STBs are: A103, A110, A110H, A125, A130, A130H and A130M

B.3 Volume control

Under default conditions, the Amino remote will send out TV commands for the volume control +/- functions.

However, if a European grey remote control is used and the brand code is set to 231, the STB will receive the volume control commands.

The `JMACX.AudioControl.GetVolume()` and `SetVolume()` commands can then be used by a key handler to control the volume output. The default key codes in `fkeys.conf` are 41 for up, and 42 for down. These can be set using the `REMOTE_LAYOUT="AMINOTV"` setting in the settings file.

The above is true for all Amino STBs except for the AmiNET130 and 530 (and newer), which do not support the 231 'workaround'. Neither do non-EU 'grey' remotes nor the newer black AVC remotes.

The AVC remote can be configured to emit key codes for the volume keys using the Amino IR protocol, which allows them work correctly with the AmiNET130 and newer STBs, and also with any other STB that supports the AVC remote.

To configure the AVC remote to emit native Amino code sequences for the volume keys, press and hold the STB button until the STB button flashes.

- If 9,9,3,Volume Up is now pressed, the remote will emit codes for the STB in all modes.
- If 9,9,3,Volume Down is now pressed, the remote will emit codes for the STB in the current mode (eg. TV if the TV mode was selected prior to entering programming mode)

- If 9,9,3,Mode is entered, this will cause the remote to emit volume codes for the selected device in the currently selected mode.

The factory default is to emit codes for the TV code set whilst in STB mode.

Opera will now see the following keycodes:

- 8495 (Volume UP)
- 8496 (Volume DOWN)

The `AudioControl.SetVolume()` / `GetVolume()` JMACX calls could then be used to implement a volume control. Action codes 41 and 42 in `fkeys.conf` could also be used (see [Function keys file](#)), but this would not allow for any visual feedback by returning the currently set volume.

Appendix C—Netconf file contents

The following table describes the settings available in the `netconf` file. Note that whether these values are used depends on the software and hardware build. For convenience sake the values are listed in alphabetical order.

Default values listed here are used if no value is supplied. In many cases, the default value is build-specific, so may not be as specified here.

The examples show how to enter the setting if you are editing the `netconf` file directly (note that the values are all enclosed in quotation marks). See the appropriate documentation for information on how to enter values using other means (for example, JMACX or `libconfig` via Telnet)

Note: The values in this table are used if `USE_NOR` is set to `Y` in the `netconf` file. .

Setting	Allowed values	Description
DHCP	Y=Always use DHCP N=Do not use DHCP	Configures whether network configuration is carried out by contacting a DHCP server. This value is used if <code>USE_NOR</code> is set to <code>Y</code> in the <code>netconf</code> file. Note that if <code>DHCP</code> is set to <code>"N"</code> , the multicast upgrade values and other settings are read from the settings listed in this table (e.g. the <code>MULTICAST_<name></code> settings). Default: Y Example: <code>libconfig-set NETCONF.DHCP "Y"</code>
DHCPTIMEOUT	Time in seconds passed as a string	Sets how long (in seconds) the DHCP timeout value should be before a new request is made. Default: Example: <code>libconfig-set NETCONF.DHCPTIMEOUT "3600"</code>

Setting	Allowed values	Description
DNS	valid IP address	The Domain Name System (DNS) associates various information with domain names; most importantly, it serves as the "phone book" for the Internet by translating human-readable computer host-names, e.g. www.example.com, into IP addresses, e.g. 208.77.188.166, which networking equipments need to deliver information. Default: Example: <pre>libconfig-set NETCONF.DNS "208.77.188.166"</pre>
DOMAIN		Specifies a domain for the set-top box. Default: Example: <pre>libconfig-set NETCONF.DOMAIN "aminocom.com"</pre>
GATEWAY	valid IP address	The tag to use when reading the gateway value from the DHCP reply. Default: Example: <pre>libconfig-set NETCONF.GATEWAY "aminocom.com"</pre>
IGMP_FAST_LEAVE	Y - use IGMP fast leave N - do not use IGMP fast leave	Enables or disables IGMP fast leave support. With IGMP_FAST_LEAVE disabled, when a host is no longer is interested in traffic from a group (for example, due to a change in channel), then it stops replying to the group query that is sent out by the router. However, this may be many seconds later, so the router will continue sending unnecessarily to the uninterested host. With IGMP_FAST_LEAVE enabled, when the host leaves a group, it sends an IGMP_FAST_LEAVE message to the router which then issues a group query immediately to see if anybody else is interested on the sub-net. Fast leave support requires all other IGMP devices on the same network to implement fast leave. Default: Example: <pre>libconfig-set NETCONF.IGMP_FAST_LEAVE "Y"</pre>

Setting	Allowed values	Description
IGMP_MAX_VER	1=IGMPv1 2=IGMPv2 3=IGMPv3	Gets the maximum version of IGMP which is supported by the STB. Default: 2. Example: <pre>libconfig-set NETCONF.IGMP_MAX_VER "3"</pre>
IPADDR	Valid IP address.	Configures the static IP address of the set-top box. This is the value used if DHCP is set to N. Default: Example: <pre>libconfig-set NETCONF.IPADDR "123.45.6.7"</pre>
NETMASK	Valid IP address.	Specifies the static netmask for the set-top box. This is the value used if DHCP is set to N (or if the set-top box cannot retrieve an IP address from the DHCP server). Default: Example: <pre>libconfig-set NETCONF.NETMASK "255.255.0.0"</pre>
PACKET_ORDERING	Y=use packet ordering. N=do not use packet ordering.	Enables or disables the use of packet ordering. Default: Example: <pre>libconfig-set NECONF.PACKET_ORDERING "Y"</pre>
TIME_SERVER	valid IP address	A time server is a server computer that reads the actual time from a reference clock and distributes this information to its clients using a computer network. The time server may be a local network time server or an internet time server. Default: Example: <pre>libconfig-set NET-CONF.TIME_SERVER="123.4.5.67"</pre>

Setting	Allowed values	Description
TIME_ZONE		Sets the timezone in tz format. Note: This implementation inverts the sign, so for a time zone of GMT plus one hour the string would be GMT-1. Default: Example: <pre>libconfig-set NETCONF.TIME_ZONE "GMT-1"</pre>
USE_NOR	Y=use values from the NOR Flash. N=do not use values from the NOR Flash, use the values found in the netconf file.	Enables or disables using network settings from the NOR Flash. If this is enabled, then the set-top box reads settings such as DHCP and NETMASK from the NOR Flash, instead of from the netconf file. Default: Example: <pre>libconfig-set NETCONF.USE_NOR="Y"</pre>

Appendix D—dhcpc file contents

The following table describes the settings available in the `dhcpcd` file. Note that whether these values are available depends on the DHCP server configuration. For convenience sake the values are listed in alphabetical order.

The examples show how to obtain the value provided by the DHCP server. Defaults are configured using other settings. Any values received via DHCP will be used in preference to these default settings. See the appropriate documentation for information on how to set defaults using other methods

In each case `null` is returned if:

- The DHCP server failed to reply
- DHCP is not enabled
- The relevant setting is not configured in the DHCP server

Setting	Description
BROWSER_HOMEPAGE	Access to the browser homepage returned by the DHCP server The browser homepage returned by the DHCP server which overrides both the default page and the one set by <code>LIBCONFIG_HOMEPAGE</code>. Value is read only and only available if DHCP is enabled. Example: <pre>libconfig-get DHCPC.BROWSER_ HOMEPAGE > aminocom.com</pre>
DIMIN	Access to the upgrade filesystem minimum DI value returned by the DHCP server. This allows for the filesystem to be automatically upgraded if there is a newer build being multicast. The current DI is compared to <code>MCAST_DIMIN</code> and <code>DHCP_MCAST_DI</code> to make the upgrade decision. The value is read only and only available if DHCP is enabled. Example: <pre>libconfig-get DHCPC.DIMIN > 0</pre>
DNS	The DNS server returned by the DHCP server if DHCP is enabled. This is read only. Example: <pre>libconfig-set DHCPC.DNS >192.168.0.0</pre>

Setting	Description
DOMAIN	The domain returned by the DHCP server if DHCP is enabled. This is read only. Example: <pre>libconfig-get DHCPC.DOMAIN > aminocom.com</pre>
GATEWAY	The gateway returned by the DHCP server if DHCP is enabled. This is read only. Example: <pre>libconfig-get DHCPC.GATEWAY ></pre>
IPADDR	The IP address returned by the DHCP server if DHCP is enabled. This is read only. Example: <pre>libconfig-get DHCPC.IPADDR > 192.168.0.0</pre>
LEASETIME	The DHCP lease time returned by the DHCP server if DHCP is enabled. This is read only. Example: <pre>libconfig-get DHCPC.LEASETIME > 600</pre>
MULTICAST_FS_ADDR	Access to the upgrade filesystem multicast address returned by the DHCP server This allows for the filesystem to be automatically upgraded if there is a newer build being multicast. This is read only. Example: <pre>libconfig-get DHCPC.MULTICAST_FS _ADDRESS >251.92.98.10</pre>
MULTICAST_FS_PORT	Access to the upgrade filesystem multicast port returned by the DHCP server This allows for the filesystem to be automatically upgraded if there is a newer build being multicast. This is read only. Example: <pre>libconfig-get DHCPC.MULTICAST_FS _PORT >11111</pre>
NETMASK	The netmask returned by the DHCP server if DHCP is enabled. This is read only Example: <pre>libconfig-get DHCPC.NETMASK > 255.255.0.0</pre>

Setting	Description
MCAST_DI	Access to the upgrade filesystem DI value returned by the DHCP server This allows for the filesystem to be automatically upgraded if there is a newer build being multicast. The current DI is compared to MCAST_DIMIN and DHCP_MCAST_DI to make the upgrade decision. The value is read only and only available if DHCP is enabled. Example: <pre>libconfig-get DHCP.MCAST_DI > 1</pre>
REBINDTIME	The DHCP rebind time returned by the DHCP server if DHCP is enabled. This is read only Example: <pre>libconfig-get DHCP.REBINDTIME > 2268000</pre>
RENEWALTIME	The DHCP renewal time returned by the DHCP server if DHCP is enabled. This is read only Example: <pre>libconfig-get DHCP.RENEWALTIME > 1296000</pre>

Appendix E —Video output formats

The following sections show the output format possibilities for each set-top box platform, depending on the cables connected. The output format is normally set as part of configuration (for example, via the Management pages or `libconfig`), but in some cases it is selected automatically – as detailed in the tables for each platform.

The name of the setting or command used to change the output format depends on which configuration tool you are using.

Note: In the following tables Composite is the same as CVBS and Component is the same as YPbPr.

E.1 AmiNET 103

Part no	Cables	Output format configuration options
	RCA to SCART	Composite
	RCA to RCA	Composite

E.2 AmiNET 110, 110H

Part no.	Cables	Output format configuration options
502-418	10 pin Mini DIN to SCART	Composite Composite + RGB S-video Composite + S-video
502-594	10 pin Mini DIN to S-video and Composite	Composite + S-video
502-523	10 pin Mini DIN to Composite (3RCA)	Composite
002-596	10 pin Mini DIN to Component (5RCA) (obsolete)	Composite + Component
502-419	10 pin Mini DIN to 6RCA Component video and Composite. Note that Sync is on Yellow (Sync on Green is not supported).	Composite Composite + RGB Composite + Component Composite + S-video S-video
	10 pin Mini DIN to S-video (obsolete)	S-video

E.3 AmiNET 125

Part no.	Cables	Output format configuration options
502-418	10 pin Mini DIN to SCART	Composite Composite + RGB Composite + S-video Composite + Component
502-594	10 pin Mini DIN to S-video and Composite	Composite + S-video
502-523	10 pin Mini DIN to Composite (3RCA)	Composite
002-596 obsolete	10 pin Mini DIN to Component (5RCA) (obsolete)	Composite + Component
502-419	10 pin Mini DIN to 6RCA Component video and Composite	Composite Composite + RGB Composite + Component Composite + S-video

E.4 AmiNET 130, 130H

Note that when the HDMI cable is connected, the HD type is selected automatically.

Part no.	Cables	Output format configuration options
502-418	10 pin Mini DIN to SCART	Composite Composite + RGB Composite + S-video Composite + Component
502-594	10 pin Mini DIN to S-video and Composite	Composite + S-video
502-523	10 pin Mini DIN to Composite (3RCA)	Composite
502-419	10 pin Mini DIN to 6RCA Component video and Composite	Composite Composite + RGB Composite + Component Composite + S-video
510-885	HDMI	Composite + Component

E.5 AmiNET 500

Any combination of the following cables:

Part no.	Cables	Output	Configuration options(output format)
002-777	Composite (RCA)	Composite	Depends on cables used. E.g. if S-video and Composite cables are connected, you can set Composite + S-video or just S-video or just Composite. If all three cables are connected, you can set Composite + Component + S-video or any combination of the formats.
002-776	S-video	S-video	
002-775	Component (3RCA)	Component	

E.6 AmiNET 530

Any combination of the following cables:

Part no.	Cables	Output	Configuration options(output format)
	Composite (RCA)	Composite	Depends on cables used. E.g. if S-video and Composite cables are connected, you can set Composite + S-video or just S-video or just Composite. If all three cables are connected, you can set Composite + Component + S-video or any combination of the formats.
	S-video	S-video	
	Component (3RCA)	Component	

Appendix F—Board revision numbers

The board revision number stored in the NOR Flash is created from a combination of a number that indicates region and a number that indicates board type. The meaning of revision numbers is platform-specific, and the information can be useful in understanding functionality that is specific to certain board types. The name of the setting or command used to change the output format depends on which configuration tool you are using. See also the entry for `BOARDREV` in [Appendix A, "NOR Flash settings"](#)

AmiNET110

Revision number	Meaning
00	Original board.
01	EU. Board with "fcc card" modification, to suppress extra harmonics from the RF modulator.
02	EU. BGA variant. AmiNET110H/500-style audio DAC, +6dB switchable RF output, new NOR Flash. Universal RF modulator.
16	US. Board with "fcc card" modification, to suppress extra harmonics from the RF modulator
17	US. Board with GPIO RF modulator channels 3 and 4 only.
32-47	Japanese

AmiNET 500

Revision number	Meaning
16	US. Standard board. GPIO RF modulator, AmiNET110H/500-style audio DAC.

AmiNET 530

Revision number	Meaning
00	EU. Standard ST board. Universal RF modulator.
16	US. Standard ST board. Universal RF modulator.

AmiNET I30

Revision number	Meaning
00	Standard ST board, Universal RF modulator
01	Universal RF modulator, High power USB port
16	US. Incorrectly used on some pre production boards, Value written off.

AmiNET I30H

Revision number	Meaning
00	Standard ST board, No RF modulator, 2 Ethernet ports
01	Universal RF modulator, High power USB port
16	US. Incorrectly used on some pre production boards, Value written off.

AmiNET I30M

Revision number	Meaning
00	Standard ST board, No RF modulator, No smart card, No mini-DIN for A/V OUT
01	Modified by 2M.

AmiNET I25

Revision number	Meaning
00	Standard board, Universal RF modulator

AmiNET I32

Revision number	Meaning
00	Standard EU board, 2 LEDs, No RF modulator
16	Standard US board, 2 LEDs, Universal RF modulator

AmiNET 532

Revision number	Meaning
00	Standard EU board, HDD, 4 LEDs, No RF modulator
16	Standard US board, HDD, 4 LEDs, Universal RF modulator

MOOD400-030

Revision number)	Meaning
00	Standard EU board, 1 (red/blue) LED, Smartcard

MOOD400-032

Revision number	Meaning
00	Standard EU board, HDD, 2 LEDs, Smartcard

Appendix G—Using the configuration techniques

The following appendix gives examples of how to use some of the configuration techniques.

G.1 Configuring image components

Configuring image components enables you to customise the files used to create a software upgrade image. When the `signupgradeimage` script creates a new image, it includes the files that are listed in the `flashcontents` file and stored in the `imagecomponents` subdirectory of the software release. You can edit these files or add new ones in order to customise the software upgrade image to your requirements.

For example, you can:

- edit configuration files before they are made available to set-top boxes.
- add files needed to enable Telnet, or SSH(Dropbear).
- add/edit an `upgrade.sh` script file that the set-top box will execute when it installs the new software upgrade image.
- replace graphics (displayed during the bootstrapping and upgrading stages) with customised versions – for example, the `splash.gif` graphic.

Note: All files in the `imagecomponents` directory must be listed in the `flashcontents` file, otherwise, the `signupgradeimage` script will fail.

G.1.1 To configure image components

The general procedure for editing image components is as follows:

Note: In the following instructions, `<release_name>` indicates the name of the software release image directory that contains your Amino software release. For example, `A110-0.14.0-frescoj27-ami_wm-subs-1` installs in `0.14.0-frescoj27-ami_wm-subs-1`, hence `<release_name>` for this is `0.14.0-frescoj27-ami_wm-subs-1`.

1. Open the file that you want to edit. The image component files are in the following location:

`<release_name>/upgradeimage/imagecomponents/`

Alternatively, you can add a new file to this location - such as a `chnls.txt` file you have copied from a pre-configured set-top box or an `upgrade.sh` file that contains `libconfig` commands to set NOR Flash values.

2. Edit the file, and save your changes.
3. Open the `flashcontents` file, and ensure that the file you have added/edited is listed there. This file is in the following location:

`<release_name>/upgradeimage/flashcontents`

The `flashcontents` file lists the files that will be included in a software upgrade image, and defines permissions for the file.

Example flashcontents file

This shows a small part of a typical `flashcontents` file.

```
# R == file must exist
#     must be read-only
#     must match the checksum in listfile.sig
# W == file may exist
#     must not be executable
#     we don't care about the checksum
# E == file may exist
#     if it does exist:
#     it must be read-only
#     must match the checksum in listfile.sig

R AMINET.img
R libm223.so
R libc223.so
R xfresco
R xfresco.amem
R mkfs.ext2
R fsck.ext2
R tune2fs
R mkfs.xfs
R font_opt.bin
R textttvd
R ttsub
R bbsdk.cfg
R irb_keys.txt
W noformat
W !poweron
W cookies.txt
W history.txt
```

4. Use the `signupgradeimage` script to create the software image, as usual.

The new software upgrade image includes your new or edited files, and you can use it to upgrade your set-top boxes.

G.1.1.1 Using Telnet or SSH to send libconfig commands

See [Chapter 4, "Using libconfig"](#) for details of how to access set-top box configuration via Telnet or SSH. These remote log-in tools are not normally included in software builds, but you can enable the appropriate tool by adding the file to the image components used to create the software image loaded onto the set-top box.

G.2 Configuring a large deployment

It is possible to configure software before deploying it to a large number of set-top boxes. The following steps describe recommendations on how this can be done for both the initial set-top box configuration and for future upgrade images.

G.2.1 Prerequisites

The configuration procedure outlined here assumes you already have a set-top box with a valid software image installed. This must include one of the remote log-in tools (Telnet/SSH/Dropbear).

1. Configure the software on the box (for example, via the Management pages), and test the configuration to ensure the set-top box now operates as intended.
2. When you are happy with the configuration, use the remote log-in tool to connect to the set-top box.
3. Copy the contents of the files that have been modified.

On the STB use:

```
mkdir /nfs
mount -o nolock <ip addr of host>:/path_to_nfs_export/ /nfs cd /nfs cp
/mnt/nv/settings /nfs/
```

The configuration files are in `/mnt/nv`, and you will need to copy them to the `<release_name>/upgradeimage/imagecomponents` directory on your PC. If you are not sure which files have been modified, then copy all the contents of the directory. Normally only the `settings` file will have been modified.

4. If you have added any new files that need to be included in the upgrade image, add them to the `flashcontents` file in the `<release_name>/upgradeimage/` directory.
5. Create a new signed upgrade image (and add it to the directory specified in the multicast server's configuration file). Ensure that the new image has an incremented deployment index, if you are using deployment indexes to control software versions installed on the set-top box (this is not recommended for a trial system).
6. Upgrade the software on a single set-top box with this new upgrade image (for example, by using `STBremoteconf`).
7. Check that the new software loads and works as expected. If changes need to be made, repeat steps 1 to 6 until the configuration is correct.
8. Instruct all set-top boxes on your network to upgrade to this new image. (for example, use the deployment index mechanism to force an automatic upgrade).

Appendix H—Invalid video mode recovery

There are a number of ways in which an STB can be configured in such that the user sees no usable output on their TV. For the AmiNETx3x series the most common are:

- Using the composite, S-video, SCART or RF output when the box is configured for HD. In this case the output will only show a black screen until video starts playing. Downscaled video will be shown on these outputs but the middleware graphics will not.
- Using HDMI and having the box configured for a mode the TV does not support (some TVs do not support 480i or 576i over HDMI, for example).
- Using an S-video, Component or RF cable but having the box configured with the corresponding output turned off.
- Connecting to an NTSC TV when the box is configured for PAL, and to a lesser extent vice-versa (many PAL TVs will show something usable when receiving an NTSC signal even if there is no colour, but most NTSC TVs will not display a PAL signal at all).

The simplest possible method of video mode recovery is as follows:

- Powercycle the box, while it is booting hold down the **OK** button.
- Initially the LED will not flash as the remote has not been read yet.
- The LED will start flashing as soon as the STB starts to read the remote.
- The box will be reconfigured and rebooted.
- The LED will stop flashing as the box reboots (Release **OK**)
- The STB should now be reconfigured and displaying again.

The LED transitions can be used to describe when to hold and when to let the **OK** button go. It transitions from lit to flashing to lit. The Restore button (**OK** in this case) can be changed if needed.

H.1 How it works

There is a script on `/mnt/nv` called `rc.restore`. This can be replaced or changed by customers if needed. This script is run just before the browser/middleware. It checks if a predefined key has been held down for more than two seconds while booting. If so, it will reset resolutions to some defaults.

The setting `NORFLASH.OUTPUT_RESOLUTION` is reset to either:

- `HDNONE` if no HDMI cable is connected (and it is not an AmiNET130M).
- `HD480P59` if HDMI is connected (or the box is an AmiNET130M) and `NORFLASH.TVSYSTEM` is `NTSC-M`, `NTSC-J` or `PAL-M`.
- `HD576P50` if HDMI is connected (or the box is an AmiNET130M) and `NORFLASH.TVSYSTEM` is anything else.

This can all be changed by changing the `rc.script` on flash.

All boxes except the AmiNET130M (to which this does not apply) always produce a composite output and all cable types have a composite signal available, so you will be able to get a picture by using this, though it may mean switching connections to the TV.

Note: This method is only useful on AmiNETx3x boxes, not on the AmiNET110 or AmiNET125.

Appendix I—Pairing an IR remote control with a set-top box

You can program an Amino IR remote control so that it can only control a set-top box that is configured to respond to it.

The Amino IR remote controls prefix a number to each set-top box command. This number is set to 000 by default, but you can program it to be another number in the range 001 to 015. For the AmiNET125, and 130 this can also be a number in the range 100 to 115.

All AmiNET set-top boxes respond to commands prefixed with 0 but you can configure them to respond to commands prefixed with another number as well.

For example, a remote control can be set to prefix commands with 3, and a set-top box can be configured to respond to commands prefixed with 3.

- The remote control can only control set-top boxes that expect 3 as a command prefix.
- The set-top box will respond to commands prefixed with 3 and also continues to respond to commands prefixed with 0 (so that all set-top boxes respond to the default Amino remote control).

The following steps use the Configuration pages to set the IR brand code. This can also be set with the other configuration tools. See [Chapter 6, "Set-top box configuration pages for Fresco and Opera 8.5"](#) and [Chapter 7, "Set-top box configuration pages for Opera 9"](#) for details.

I.1 On the grey Amino IR remote control

1. Hold down the **STB** and **OK** buttons until the **STB** button lights up permanently.
2. Enter the number that you want to set as the prefix code for this remote control. This must be a three-digit number in the range 000 - 015 (also 100 -115 for the AmiNET125 and 130).

For example:

111

The remote control will now prefix all set-top box commands with this code.

Note: To revert to the default code (that is, to unpair the remote control and set-top box), repeat these steps and set the code to 000.

I.1.1 On the Amino AVC (black) IR remote control

1. Hold down the **STB** button until the LED flashes twice
2. Enter 9 8 2. The STB light should flash four times. If it flashes twice, repeat this part of the procedure. The 9 8 2 sequence unlocks/locks remote configuration programming.
 - 4 flashes = unlocked
 - 2 flashes = locked

3. Hold down the **STB** key until the LED flashes twice and continue holding it until it flashes twice again.
4. Enter the number that you want to set as the prefix code for this remote control. This must be a three-digit number in the range 000 - 015 (or 100 -115 for the AmiNET125 and 130).

I.1.2 To configure the set-top box

1. From the Amino IR keyboard, press **Alt-M** and then enter the Management password (leaves by default), to access the Management pages.

Warning:

Amino strongly recommends that you change the default passwords when deploying our set-top boxes. See Section 4.4 of the Amino *Installation and Upgrade Guide* for information on changing these default passwords.

2. Open the **Infra-Red Configuration** page.
3. Enter the two-digit code as you programmed the remote control with, this is the last two digits of the 3-digit code used in Step 4 above - the first digit indicates the frequency used, for example, if this is an AmiNET125 and you have set the STB brand code to 111 then the two digit code to enter is 11
4. This can also be set with `libconfig-set SETTINGS.IR_BRAND "11"`.
Note: Navigation on this page is sometimes difficult –use the arrow keys on the Amino IR keyboard instead of the mouse.
5. Save the changes (the default password here is `snake`).
 The remote control and the set-top box are now paired.

Index

A

ANY_KEY_STANDBY_RECOVER (settings file) 141
AVSYNC_WAIT (settings file) 141

B

BOARDREV (NOR Flash) 127
Browser configuration files 6
Browser Setup (Management pages) 65, 88, 109, 124
BROWSER_CONCEAL_STARTUP (settings file) 142
BROWSER_ENABLECOOKIES (settings file) 142
BROWSER_HELPPAGE (settings file) 142
BROWSER_HOMEPAGE (dhcpc file) 173
BROWSER_HOMEPAGE (settings file) 142
BROWSER_MARGIN_BOTTOM (settings file) 143
BROWSER_MARGIN_COLOUR (settings file) 142
BROWSER_MARGIN_LEFT (settings file) 143
BROWSER_MARGIN_RGHT (settings file) 143
BROWSER_MARGIN_RIGHT (settings file) 143
BROWSER_MARGIN_TOP (settings file) 143
BROWSER_RETRY (settings file) 143
BROWSER_TRANSPARENCY (settings file) 143
BROWSER_UNLOAD_VIDEO (settings file) 144

C

CC_OUTPUT_SOFTcc(settings file) 144
CC_OUTPUT_VBI(settings file) 144
CC_PREFERENCE (settings file) 144
CHANGEPAGE (STBremoteconf) 27
CHANGE-PWORD (STBremoteconf) 27
CHANNEL (STBremoteconf) 28
Channels (Management pages) 65, 88, 109, 125
chnls.txt 6, 88
 Contents 12
Closed caption builds 56, 96
CLOSED_CAPTION_SWAPPED (settings file) 144
config.txt 6, 88
config.txt file 89
Configuration pages
 Configuring set-top box 6
 Controlling with keyboard 55, 95
 Controlling with remote control 55, 95
Configuring
 Set-top box 5

Browser configuration file 6
chnls.txt 6
config.txt 6
Configuration pages 6
Dropbear 7
fkeys.conf file 6
hostname file 5
Image components 6
Management pages 88, 124
Multiple set-top boxes 186
netconf file 5
NOR Flash settings 41
opera.ini 6
Options 6
Preferences pages 86, 123
settings file 5
SSH 7
STBremoteconf 6
Telnet 7
usersettings file 6
Using Management pages 66, 110
Set-top boxes
 Prerequisites 187
CORE_LANG (NOR Flash) 127
CUSTOMER_DATA (NOR Flash) 128

D

Default access policies 18
Default policies 18
DEFAULT_VOLUME (settings file) 145
DELAY_FACTOR (settings file) 145
DHCP (netconf file) 169
DHCP (NOR Flash) 128
DHCP settings
 Dynamic 5, 42
DHCP_AUTHENTICATION (NOR Flash) 128
dhcpc file
 BROWSER_HOMEPAGE 173
 DIMIN 173
 DNS 173
 DOMAIN 174
 GATEWAY 174
 IPADDR 174
 LEASETIME 174
 MCAST_DI 175
 MULTICAST_FS_ADDR 174
 MULTICAST_FS_PORT 174
 NETMASK 174

REBINDTIME 175
RENEWALTIME 175
DHCP settings 5, 42
DHCP_TIMEOUT (netconf file) 169
DHCP_TIMEOUT (NOR Flash) 128
DI (NOR Flash) 128
DIMIN (dhcpc file) 173
DISABLE_ERR_BOX (settings file) 145
DISPLAY_MODE (settings file) 146
DNS (dhcpc file) 173
DNS (netconf file) 170
DNS (NOR Flash) 129
DOLBY_RF (settings file) 146
DOMAIN (dhcpc file) 174
DOMAIN (netconf file) 170
Dropbear
 Configuring set-top box 7
Dynamic DHCP settings 5, 42

E

EAS (STBremoteconf) 28
ENABLE_NDS_AUTH (settings file) 147
ENABLE_TRUSTED_DOMAINS (settings file) 147
EOS_KILLS_VIDEO (settings file) 147
ETHERNET (NOR Flash) 129
ETHERNET (STBremoteconf) 29

F

FETCHFILE (STBremoteconf) 29, 30, 31, 32
File access policy 17
fkeys.conf 6
FULLSCREEN (settings file) 147

G

GATEWAY (dhcpc file) 174
GATEWAY (netconf file) 170
GATEWAY (NOR Flash) 89, 125, 126, 129
GETDI (STBremoteconf) 29
GETVERSION (STBremoteconf) 30

H

H264_VIDEO_DELAY (settings file) 148
H264_VIDEO_TP_DELAY (settings file) 149
Hardware Information (Management pages) 66
Hardware information (Management pages) 90
HDMI_AUDIO_FORMAT (settings file) 149
HOSTNAME (hostname file) 15, 89, 125
hostname file 5
 Contents 15
 HOSTNAME 15, 89, 125
HTTP_PROXY (settings file) 149
HTTP_PROXY_IGNORE (settings file) 150
HTTPS_PROXY (settings file) 150
HWINFO (STBremoteconf) 30

I

IDENT (NOR Flash) 129
Identity (Management pages) 66, 91
IGMP_END_TIMEOUT (settings file) 150
IGMP_FAST_LEAVE (netconf file) 170
IGMP_MAX_VER (netconf file) 171
IGMP_MAX_VER (NOR Flash) 129
IGMP_RETUNE_AFTER_TIME (settings file) 151
IGMP_START_TIMEOUT (settings file) 150
Image components
 Configuring set-top box 6
IME (settings file) 151
Infra-Red Configuration (Management pages) 66, 91
INITIAL_LED (settings file) 151
Installing
 Perl modules for STBremoteconf 21
IPADDR (dhcpc file) 174
IPADDR (netconf) 171
IPADDR (NOR Flash) 89, 125, 126, 130
IR_BRAND (settings file) 152

K

Keyboard
 Using with Configuration pages 55, 95
 Using with Management pages 66, 109
Keyboard settings (Preferences pages) 86, 123
KEYMAP (settings file) 152

L

LEASETIME (dhcpc file) 174
LEGACY_SUBS (settings file) 152
LINKSTATE_FAIL_THRESHOLD (NOR Flash) 130
LINKSTATE_KEY_THRESHOLD (settings file) 152
LINKSTATE_TIMEOUT (NOR Flash) 130
LINKSTATE_TIMEOUT (settings file) 153
LOCK (NOR Flash) 130
LOGREAD (STBremoteconf) 30

M

MAC_ADDRESS (NOR Flash) 130
Management pages 65, 108
 Browser Setup 65, 109
 Channels 65, 109
 Configuration settings used 88, 124
 Browser Setup 88, 124
 Channels 88, 125
 Hardware information 90
 Identity 91
 Infra-Red 91
 Network 89
 Proxy Setup 88, 125
 Software version 91
 Trusted Domains 88
 TVI 91
 Video Setup 88
 Controlling with keyboard 66, 109
 Editing configuration 66, 110

- Hardware Information 66
- Identity 66
- Infra-Red Configuration 66
- List of pages 65, 109
- Network Configuration 66
- Proxy Setup 65
- Reboot 66, 109
- Rebooting set-top box 67, 108, 110, 122
- see also Configuration pages 65, 108
- Software Version 66
- Trusted Domains 65
- TVI Configuration 66
- Update Software 66, 109
- Video Setup 65, 109
- Viewing configuration 66, 110
- MANAGEMENT_PREFIX (settings file) 153
- MAXIMUM_VOLUME (settings file) 153
- MAX_PCR_PTS_BUFFERING (settings file) 154
- MCAST_DI (dhcpc file) 175
- MIDWAY_KEY_IDLE_TIMEOUT (settings file) 154
- MINIMUM_VOLUME (settings file) 154
- MPEG2_VIDEO_DELAY (settings file) 155
- MPEG2_VIDEO_TP_DELAY (settings file) 155
- MULTICAST_BOOTSTRAP_GROUP (NOR Flash) 131
- MULTICAST_BOOTSTRAP_PORT (NOR Flash) 131
- MULTICAST_FILESYSTEM_GROUP (NOR Flash) 132
- MULTICAST_FILESYSTEM_PORT (NOR Flash) 132
- MULTICAST_FS_ADDR (dhcpc file) 174
- MULTICAST_FS_PORT (dhcpc file) 174
- MULTICAST_UPGRADE_GROUP (NOR Flash) 133
- MULTICAST_UPGRADE_PORT (NOR Flash) 133

N

- NATIVE_FRAMERATE_PASSTHRU_ENABLE (settings file) 156
- NATIVE_PASSTHROUGH_ENABLE (settings file) 156
- netconf
 - IPADDR 171
 - NETMASK 171
- netconf file 5
 - DHCP 169
 - DHCP_TIMEOUT 169
 - DNS 170
 - DOMAIN 170
 - GATEWAY 170
 - IGMP_FAST_LEAVE 170
 - IGMP_MAX_VER 171
 - PACKET_ORDERING 90, 171
 - TIME_SERVER 171
 - TIME_ZONE 172
 - USE_NOR 172
 - USE_PPP 139
- NETMASK (dhcpc file) 174
- NETMASK (netconf) 171
- NETMASK (NOR Flash) 134
- NET_OPERATOR (NOR Flash) 133
- Network Configuration (Management pages) 66, 89
- NOR Flash
 - BOARDREV 127
 - CORE_LANG 127
 - CUSTOMER_DATA 128
 - DHCP 128

- DHCP_AUTHENTICATION 128
- DHCP_TIMEOUT 128
- DI 128
- DNS 129
- ETHERNET 129
- GATEWAY 89, 125, 126, 129
- IDENT 129
- IGMP_MAX_VER 129
- IPADDR 89, 125, 126, 130
- LINKSTATE_FAIL_THRESHOLD 130
- LINKSTATE_TIMEOUT 130
- LOCK 130
- MAC_ADDRESS 130
- MULTICAST_BOOTSTRAP_GROUP 131
- MULTICAST_BOOTSTRAP_PORT 131
- MULTICAST_FILESYSTEM_GROUP 132
- MULTICAST_FILESYSTEM_PORT 132
- MULTICAST_UPGRADE_GROUP 133
- MULTICAST_UPGRADE_PORT 133
- NETMASK 134
- NET_OPERATOR 133
- NTSC_SUBS 134
- OUTFMT 135
- PPP_PASSWORD 135
- PPP_USERNAME 135
- RECOVERY_UPGRADE_SERVER 135
- RFMOD_CHAN 136
- RFMOD_ENABLE 136
- RFMOD_FREQTABLE 136
- SCART_PIN8_OFF 136
- SERIAL_ID 136
- STB_ATTESTATION 136
- STB_PROVIDER 137
- SUBTITLES 137
- TFTP_LOADFILE 137
- TFTP_SERVER 137
- TIME_SERVER 138
- TVSYSTEM 139
- U_BOOT_OPTION 138
- VLAN 139
- VLAN_EXTERNAL_ID 139
- VLAN_INTERNAL_ID 139
- NOR Flash settings 41
- NTPCLIENT_TIMEOUT (settings file) 156
- NTSC_SUBS (NOR Flash) 134

O

- ONSCREEN_KBD-RAISE (settings file) 156
- opera.ini 6
- OPERA_HTTP_AUTHENTICATION_DOMAINS (settings file) 156
- OUTFMT (NOR Flash) 135
- OUTRES (STBremoteconf) 31

P

- PACKET_ORDERING (netconf file) 90, 171
- PING (STBremoteconf) 32
- POD_SENSITIVITY (settings file) 157
- PPP_PASSWORD (NOR Flash) 135
- PPP_USERNAME (NOR Flash) 135
- Preference pages
 - PVR settings 57

- Preferences pages 56, 96
 - Closed caption builds 56, 96
 - Configuration settings used 86, 123
 - Keyboard 86, 123
 - Subtitles 86
 - TV and audio 86, 123
 - Controlling with the remote control 57, 96
 - see also Configuration pages 56, 96
- PREFERRED_LANG (settings file) 157
- PREFERRED_LANGUAGE (settings file) 86
- PREF_HD_RESOLUTION (settings file) 157
- PREFILL_DECODER_BUFFERS (settings file) 157
- Prerequisites
 - Configuring multiple set-top boxes 187
 - STBremoteconf 20
 - Installing Perl modules 21
- PROC (STBremoteconf) 32
- Procedure
 - Configuring multiple set-top boxes 186
 - Sending STBremoteconf commands 22
- Proxy Setup (Management pages) 65, 88, 125
- PS (STBremoteconf) 32
- PVR options
 - preference pages 57

R

- RCIME_DEFLANG (settings file) 157
- RCIME_DEFMODE (settings file) 158
- RCIME_TIMEOUT (settings file) 158
- REBINDTIME (dhcpc file) 175
- Reboot (Management pages) 66, 109
- REBOOT (STBremoteconf) 33
- Rebooting set-top box
 - Using Management pages 67, 108, 110, 122
- RECOVERY_UPGRADE_SERVER (NOR Flash) 135
- REFLASH (STBremoteconf) 33
- REFORMAT (STBremoteconf) 33
- Remote control
 - Using with Configuration pages 55, 95
 - Using with the Preferences pages 57, 96
- REMOTECNF (settings file) 158
- REMOTECNFPORT (settings file) 159
- REMOTE_LAYOUT (settings file) 158
- RENEWALTIME (dhcpc file) 175
- REPEAT_RATE (settings file) 159
- RFBOOST_DOLBY (settings file) 159
- RFBOOST_MPEG (settings file) 159
- RFMOD_CHAN (NOR Flash) 136
- RFMODE (STBremoteconf) 34
- RFMOD_ENABLE (NOR Flash) 136
- RFMOD_FREQTABLE (NOR Flash) 136
- RTSP_BASE_PORT (settings file) 159
- RTSP_DESTINATION (settings file) 160
- RTSP_END_TIMEOUT (settings file) 160
- RTSP_PING_TIMEOUT (settings file) 160
- RTSP_SCALE (settings file) 160
- RTSP_SERVER (settings file) 161
- RTSP_START_TIMEOUT (settings file) 161

S

- SAVEFILE (STBremoteconf) 34
- SCART_PIN8_OFF (NOR Flash) 136

- SECONDARY_LANG (settings file) 161
- SECONDARY_LANGUAGE (settings file) 86
- SERIAL_ID (NOR Flash) 136
- settings file 5
 - ANY_KEY_STANDBY_RECOVER 141
 - AVSYNC_WAIT 141
 - BROWSER_CONCEAL_STARTUP 142
 - BROWSER_ENABLECOOKIES 142
 - BROWSER_HELPPAGE 142
 - BROWSER_HOMEPAGE 142
 - BROWSER_MARGIN_BOTTOM 143
 - BROWSER_MARGIN_COLOUR 142
 - BROWSER_MARGIN_LEFT 143
 - BROWSER_MARGIN_RIGHT 143
 - BROWSER_MARGIN_TOP 143
 - BROWSER_RETRY 143
 - BROWSER_TRANSPARENCY 143
 - BROWSER_UNLOAD_VIDEO 144
 - CC_OUTPUT_SOFTCC 144
 - CC_OUTPUT_VBI 144
 - CC_PREFERENCE 144
 - CLOSED_CAPTION_SWAPPED 144
 - DEFAULT_VOLUME 145
 - DELAY_FACTOR 145
 - DISABLE_ERR_BOX 145
 - DISPLAY_MODE 146
 - DOLBY_RF 146
 - ENABLE_NDS_AUTH 147
 - ENABLE_TRUSTED_DOMAINS 147
 - EOS_KILLS_VIDEO 147
 - FULLSCREEN 147
 - H264_VIDEO_DELAY 148
 - H264_VIDEO_TP_DELAY 149
 - HDMI_AUDIO_FORMAT 149
 - HTTP_PROXY 149
 - HTTP_PROXY_IGNORE 150
 - HTTPS_PROXY 150
 - IGMP_END_TIMEOUT 150
 - IGMP_RETUNE_AFTER_TIME 151
 - IGMP_START_TIMEOUT 150
 - IME 151
 - INITIAL_LED 151
 - IR_BRAND 152
 - KEYMAP 152
 - LEGACY_SUBS 152
 - LINKSTATE_FAIL_THRESHOLD 152
 - LINKSTATE_TIMEOUT 153
 - MANAGEMENT_PREFIX 153
 - MAXIMUM_VOLUME 153
 - MAX_PCR_PTS_BUFFERING 154
 - MIDWAY_KEY_IDLE_TIMEOUT 154
 - MINIMUM_VOLUME 154
 - MPEG2_VIDEO_DELAY 155
 - MPEG2_VIDEO_TP_DELAY 155
 - NATIVE_FRAMERATE_PASSTHRU_ENABLE 156
 - NATIVE_PASSTHROUGH_ENABLE 156
 - NTPCLIENT_TIMEOUT 156
 - ONSCREEN_KBD_RAISE 156
 - OPERA_HTTP_AUTHENTICATION_DOMAINS 156
 - POD_SENSITIVITY 157
 - PREFERRED_LANG 157
 - PREFERRED_LANGUAGE 86
 - PREF_HD_RESOLUTION 157
 - PREFILL_DECODER_BUFFERS 157
 - RCIME_DEFLANG 157
 - RCIME_DEFMODE 158

- RCIME_TIMEOUT 158
- REMOTECONF 158
- REMOTECONFPORT 159
- REMOTE_LAYOUT 158
- REPEAT_RATE 159
- RFBOOST_DOLBY 159
- RFBOOST_MPEG 159
- RTSP_BASE_PORT 159
- RTSP_DESTINATION 160
- RTSP_END_TIMEOUT 160
- RTSP_PING_TIMEOUT 160
- RTSP_SCALE 160
- RTSP_SERVER 161
- RTSP_START_TIMEOUT 161
- SECONDARY_LANG 161
- SECONDARY_LANGUAGE 86
- STANDBY_LED 161
- STBRCPORT 161
- STC_OFFSET 162
- SUBTITLES_OPTION 162
- SUBTITLES_PREF_LANG 162
- SUBTITLES_SECOND_LANG 86, 124, 163
- TELETEXT_FULLSCREEN
- TELETEXT_FULLSCREEN (settings file) 163
- TEXT_ENTRY 163
- TOOLBAR_STATE 163
- TVI_TYPE 163
- UDP_END_TIMEOUT 164
- UDP_START_TIMEOUT 164
- UI_LANG 164
- USB_SPEED 164
- USB_TIMEOUT 165
- USE_PROXY 165
- USER_AGENT_STRING 165
- SIGNEDCMD (STBremoteconf) 35
- Software Version (Management pages) 66
- Software version (Management pages) 91
- SSH
 - Configuring set-top box 7
- STANDBY_LED (settings file) 161
- STATS (STBremoteconf) 35
- STB_ATTESTATION (NOR Flash) 136
- STB_PROVIDER (NOR Flash) 137
- STBRCPORT (settings file) 161
- STBremoteconf 19
 - CHANGEPAGE 27
 - CHANGE-PWORD 27
 - CHANNEL 28
 - Command syntax 23
 - Commands
 - List 27
 - Overview 26
 - Configuring set-top box 6
 - EAS 28
 - ETHERNET 29
 - FETCHFILE 29, 30, 31, 32
 - GETDI 29
 - GETVERSION 30
 - HWINFO 30
 - LOGREAD 30
 - OUTRES 31
 - PING 32
 - Prerequisites 20
 - Installing Perl modules 21
 - PROC 32
 - PS 32
 - REBOOT 33

- REFLASH 33
- REFORMAT 33
- RFMODE 34
- SAVEFILE 34
- Sending commands 22
 - Syntax 23
- SIGNEDCMD 35
- STATS 35
- SYSLOG 36
- TVSYSTEM 37
- UPGRADEMCAST 37
- UPGRADEMCAST_VER 38
- VOD 38
- STC_OFFSET (settings file) 162
- SUBTITLES (NOR Flash) 137
- Subtitles settings (Preferences pages) 86
- SUBTITLES_OPTION (settings file) 162
- SUBTITLES_PREF_LANG (settings file) 162
- SUBTITLES_SECOND_LANG (settings file) 86, 124, 163
- Syntax
 - STBremoteconf commands 23
- SYSLOG (STBremoteconf) 36

T

- Telnet
 - Configuring set-top box 7
- TEXT_ENTRY (settings file) 163
- TFTP_LOADFILE (NOR Flash) 137
- TFTP_SERVER (NOR Flash) 137
- TIME_SERVER (netconf file) 171
- TIME_SERVER (NOR Flash) 138
- TIME_ZONE (netconf file) 172
- TOOLBAR_STATE (settings file) 163
- trsdms.txt 88
 - Contents 13
- trsdms.txt file 88
- Trusted Domains (Management pages) 65, 88
- TV and audio settings (Preferences pages) 86, 123
- TVI Configuration (Management pages) 66, 91
- TVI_TYPE (settings file) 163
- TVSYSTEM (NOR Flash) 139
- TVSYSTEM (STBremoteconf) 37

U

- U_BOOT_OPTION (NOR Flash) 138
- UDP_END_TIMEOUT (settings file) 164
- UDP_START_TIMEOUT (settings file) 164
- UI_LANG (settings file) 164
- Update Software (Management pages) 66, 109
- UPGRADEMCAST (STBremoteconf) 37
- UPGRADEMCAST_VER (STBremoteconf) 38
- USB_SPEED (settings file) 164
- USB_TIMEOUT (settings file) 165
- USE_NOR (netconf file) 172
- USE_PPP (netconf file) 139
- USE_PROXY (settings file) 165
- User preferences pages
 - see Preferences pages 56, 96
- USER_AGENT_STRING (settings file) 165
- usersettings file 6
 - Contents 14

V

Video Setup (Management pages) 65, 88, 109
VLAN (NOR Flash) 139
VLAN_EXTERNAL_ID (NOR Flash) 139
VLAN_INTERNAL_ID (NOR Flash) 139
VOD (STBremoteconf) 38